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25c

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25	6	35c	250	6	55c
25	12	35c	250	16	55c
25	18	35c	250	25	75c
25	25	35c	250	50	95c
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HANDBOOK NEGOTIATIONS

It is well known that a committee of the Federal Executive of the Wireless Institute of Australia has been engaged in a review of the Regulations governing the Amateur Service in Australia with senior officers of the Postmaster-General's Department.

Unfortunately certain information has been published which may have given the impression that some changes have already been made to the operating conditions of the Amateur Service. Indeed three recent incidents have come to notice of Federal Executive which have indicated that some Amateurs have misunderstood the position.

The position is that the negotiations have been completed but until Ministerial approval is obtained the amendments agreed cannot be implemented, therefore it must be stressed that the Regulations and Handbook remain at present unaltered and all Amateurs are bound to comply with the provisions of the current Handbook.

Immediately any changes are in fact made all Amateurs will be notified, probably in the first instance through the pages of "Amateur Radio."

HAROLD L. HEPBURN, Federal Vice-President, W.I.A.

CONTENTS

YOUR PYE REPORTER—TUNABLE OR CRYSTAL LOCKED

BOB YOUNG, VK2ZRY*

FOR some time now I and my colleagues on the Illawarra six metre net have been discussing the potentialities of Pye Taxiphones. From the price angle they are a real bargain, they are readily available and they contain a receiver which is a real performer, it seems a pity therefore, that such an excellent unit should be stuck on one fixed frequency.

Numerous articles have appeared in relation to converting these units for six metre operation but as yet all such articles have concentrated only on the fixed frequency mode of operation or at most tuning a small portion of the band.

For some time now I have considered that there would be a genuine interest in the modification of one of these units, in such a way that the receiver at least could be used not only in the crystal locked mode but also as a unit which could be tuned over the entire six metre band.

My efforts in this direction have resulted in a relatively simple modification whereby the receiver can be switched from

(a) a fully crystal locked unit for mobile work to
(b) a tunable unit capable of covering the whole six metre band.

In both modes of operation the double conversion principle is retained, there is no loss of sensitivity over the tunable range, stability is excellent and the change from one mode to the other does not involve switching of tuned circuits.

THEORY

The receiver as it stands is a double conversion superhet which may be locked on to any selected channel by switching in an appropriate crystal.

For six metre operation the first i.f. frequency is derived by beating the 8th harmonic of the appropriate crystal against the selected channel frequency. The second i.f. (2.9 megacycles) is derived by beating the crystal fundamental against the first i.f. frequency.

The following will be noted: The second i.f. is fixed at 2.9 megacycles. The first i.f. frequency is dependent on the frequency of the appropriate channel selection crystal, which is in turn, determined by the frequency of the channel on which it is desired to lock the receiver. Also the first mixer injection frequency is on the high side of the band. If we denote the desired channel frequency by the letter f and the appropriate crystal frequency by F, we may calculate the crystal frequency for any channel from the ensuing formula:—

$$8F - f = F + 2.9$$

$$\text{or } F = \frac{f + 2.9}{7}$$

f and F being expressed in the same units, i.e. Kc. or Mc.

* Foothills Road, Corrimal.

Assuming that your Mark I. or Mark III. receiver has already been modified for fixed frequency work on your own particular net, you already have a crystal and you know the frequency of the first i.f.

MAKING RECEIVER TUNABLE

To make your receiver tunable the following steps are required:

(1) Modification of the r.f. and mixer coils in order to obtain a flat frequency response over the range 52-54 megacycles.
(2) The addition of a tunable oscillator suitably coupled to the first mixer and capable of supplying an adequate injection voltage over a range of two megacycles at a frequency below the band, by an amount equal to the first i.f. frequency.
(3) A switch whereby h.t. may be shifted from the added local oscillator to the harmonic amplifier and crystal oscillator plate or vice versa — depending on the mode of operation required.
(4) Optional—a regulated h.t. supply for the tunable local oscillator.

Let us now look at the circuit diagram in Fig. 1 which shows in a fully integrated form the entire modification.

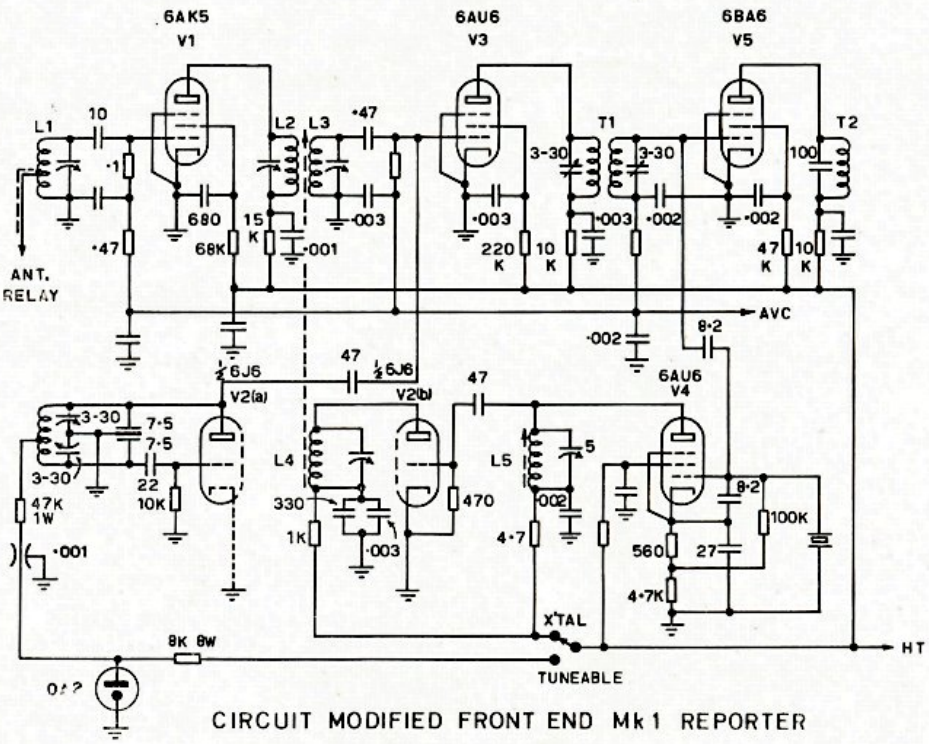
Note These Points:

Close attention to the following points should enable the average Ham to reduplicate my conversion.

(1) The first mixer grid is no longer tapped down on the coil; this results in a negligible loss of gain and achieves a worthwhile increase in effective bandwidth.

(2) The original harmonic amplifier V2, a 6AU6, has been removed and replaced by a 6J6 twin triode. I would advise that in the interests of ultimate stability the corresponding tube socket should be replaced with a quality ceramic or teflon unit. If your unit is to be operated on 12 volts this tube substitution will also necessitate replacement of the 22 ohm heater balance resistor with a 50 ohm unit. One triode section of the 6J6 is now wired into the circuit to replace the original harmonic amplifier. The original harmonic amplifier plate coil is reconnected. The original coupling capacitor from the crystal oscillator is connected to the triode grid which is earthed via a 470K resistor. The 6J6 cathode is earthed. Your taxiphone has now been restored to its original condition except that the harmonic amplifier is now a triode.

At this stage I should like to raise a point of major importance. In some units it will be found that the harmonic amplifier has been used as a quadrupler, the plate tank of the crystal oscillator being tuned to only double the crystal frequency. It is essential that in this operation the crystal frequency be multiplied by four in the crystal oscillator plate circuit, so that the 6J6 triode section functions only as a doubler. Failure to observe this point will result in a serious loss of first mixer injection voltage, which in



CIRCUIT MODIFIED FRONT END Mk 1 REPORTER

turn will cause a drastic reduction in conversion efficiency with crystal locked operation.

(3) The remaining triode section is wired up as a tunable v.h.f. Colpitt's oscillator. There is nothing critical in this operation so long as one observes the rules in relation to keeping grid and plate leads as short and rigid as possible. Actual layout will depend on whether you are working on a Mark 1 or a Mark 3. In my own Mark 1 I mounted the tuning gang (a split stator unit with a maximum capacity of 12 pF. a side) a little forward of the space between the crystal sockets. This enabled me to bring an extension shaft to the front panel where a small vernier dial was mounted. The oscillator padders (Philips type concentric trimmers) were fitted at the left side of the gang leaving ample space on the right side for the oscillator plate coil. This coil consists of nine turns spaced to $\frac{3}{4}$ in. and wound on a $\frac{5}{8}$ in. bakelite former. The leads from the coil are taken through to the underside of the chassis via feed-through insulators which were fabricated from the base sections of ordinary plastic spring terminals. The coil is braced centrally by its 47K feed resistor which is anchored to a 0.001 μF. ceramic feed-through capacitor soldered to the chassis adjacent to the centre of the coil.

(4) The Mark 1 has a vacant socket hole adjacent to the transmitter oscillator tube, this was utilised by adding an OA2 regulator tube fed with h.t. through an 8,000 ohm 5 watt resistor via the function switch. This refinement is not essential. However, if you decide to dispense with it, a different value of h.t. feed resistor to the tunable oscillator will be required in order to obtain optimum first mixer injection for the tunable mode of operation. Remember, a great excess of injection voltage will over bias the mixer and seriously reduce its gain, a moderate increase over the optimum may not appreciably effect conversion gain but it will certainly result in the appearance of birdies.

(5) The function switch may now be mounted in some convenient position. An ordinary s.p.d.t. toggle switch will serve the purpose admirably, the manner in which it is connected up should be clearly indicated in Fig. 1.

(6) The final step requires the rewinding of L1, L2 and L3 so that they may be resonated at 53 megacycles with an absolute minimum of parallel capacitance preferably 5 pF. or less.

The hard work is now completed.

Apply power to your modified receiver, switch to "tunable" set the tuning capacitor at its mid position and with the aid of an absorption wave-meter set the 3-30 pF. trimmers so that the local oscillator resonates at 53 (minus the first i.f.) megacycles, aim at maintaining both trimmers' capacitances equal.

Next check that the oscillator may be tuned over a 2 megacycles range. This can be readily achieved by readjusting the coil spacing and trimmer settings.

Having done this and providing your wiring is correct the receiver should be showing signs of life.

The tuning capacitor is reset to its mid position and the r.f. coils peaked for maximum receiver noise.

The next step—tune to 54 megs. and pull out the 6AK5, a sharp drop in receiver noise should result, now tune to 52 megs. and replace the 6AK5, the receiver noise should increase. If these changes do not occur the frequency response of the front end is too sharp and L1, L2 and L3 will need to be stagger-tuned or loaded with 15K resistors. The ultimate aim is to adjust the front end tuning so that anywhere over the range of 52-54 megs. removing the 6AK5 from its socket results in a noticeable drop in noise output at the speaker. This ensures that the receiver will give its maximal usable gain over the entire band with no degradation of signal to noise ratio.

Finally, switch to "crystal locked" and repeak the harmonic amplifier plate tank for maximum noise or better still if there is a relatively weak signal available tune for maximum signal.

Your job is now completed, a few contacts on the band should have you convinced that your receiver is now as good as ever on your net frequency and is equally sensitive over the entire band on "tunable."

Some of the more discerning types may have some doubts because with either mode of operation there remains an unused tuned circuit permanently connected to the first mixer grid. By way of explanation let us consider the case of the receiver functioning as a tunable unit. Here the mixer grid circuit is inductively coupled to the unused harmonic amplifier tank circuit the mixer grid, however, sees nothing more than an absorption wave trap fixed tuned in the region of 65 megacycles, thus there is no degradation of mixer performance, in fact, in the presence of a strong interfering signal in the region of 65 megacycles this normally unused circuit would prove to be of value in reducing such interference. Considering the case of crystal locked operation a similar situation arises except that the wave trap is now capacitance coupled to the mixer grid and is centred on a frequency of 41 megs. or thereabouts. It is admitted that in this instance the capacitance coupling will result in some loss of signal from the mixer grid but in actual practice the loss is so small that it is not detectable.

Many will say that the top end of the band is dead anyhow, so why bother tuning the entire 2 megacycles range. For the benefit of those with this attitude, may I conclude by making the point that there is an active group in Illawarra on 53.982 with some 20 stations in the Wollongong area alone.

Finally, my thanks to the Wollongong manager of the Pye Service Workshop, Mr. Noel Boyd, who was kind enough to run a lab. check on the above conversion. He used a P.M.G. certified Marconi sig. gen. from which he obtained the following performance data:

(1) Crystal locked on 53.982 megs. 0.5 microvolt for 50 mW. output. S/N ratio better than 10 db.

(2) Tunable on 53,982 megs. 0.5 microvolts for 50 mW. output. S/N ratio better than 10 db.

(3) Tunable 53.983 ± 1 megacycle. 1.6 microvolt for 50 mW. output. S/N ratio better than 10 db.

The manufacturer's specification for the original Mark 1: 2 microvolts or better for 50 mW. output at 8 db. S/N ratio.

NUVISTOR CONVERTERS FOR 50, 144, 220 & 432 Mc.

Plus

A NUVISTOR PREAMP. FOR 144 Mc.*

FRANK C. JONES, W6AJF

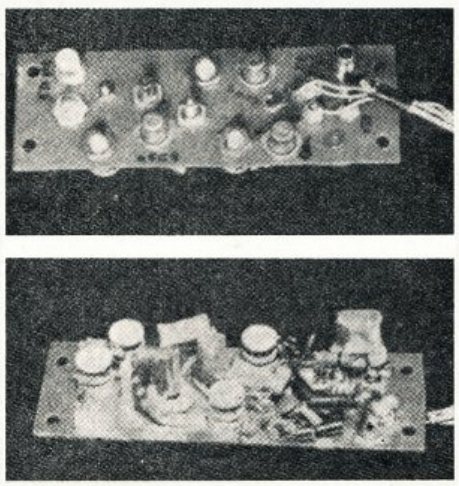
Presented below are four converters, using nuvistors exclusively, for 50, 144, 220 and 432 Mc. operation. Also thrown in is a preamplifier for 144 Mc. that performed as well as the 416 B job formerly in use at W6AJF.

SOME very good nuvistor tube converters and amplifiers have been described in the past few years. A few more are described briefly in this article, since there are many ways of accomplishing certain results. Some Amateurs like to make exact copies of equipment, while others like to make use of parts of a circuit to work out their own designs for the different v.h.f. bands. The writer falls into this last classification, being one of the old-timers who enjoys building anything from a simple pre-amplifier to a complete communications receiver. There are usually at least two or three v.h.f. converters for each band at W6AJF with complete separate home-built receivers for each type of signal to be received. Examples are one or two each for c.w., n.b.f.m., a.m., and Mars wide-band a.m. signals. The nuvistor converters described here have been some of the many built during the period since my handbook "V.H.F. for the Radio Amateur"[1] first appeared in print. These little gems of u.h.f. tubes were just appearing, too late to be shown in that handbook.

50 Mc. CONVERTER

While nuvistor tubes can be used at low or high radio frequencies, they really begin to shine as performers in the v.h.f. bands. Long life operation, small size, small heat losses and ease of building them into v.h.f. circuits are some of the advantages of nuvistor tubes. A 50 Mc. converter is shown in this photograph and the circuit in Fig. 1. This particular series of converters were all built on 2 by 6 inch strips of copper-clad bakelite for mounting in a 6 x 3 x 17 inch chassis as a bottom cover and shield.

The circuit of Fig. 1 shows the use of pre-selection ahead of the r.f. amplifier followed by two tuned circuits ahead of the mixer tube. The circuits were designed for a Q of approximately 20 in order to pass somewhat more than the 50 to 52 Mc. band desired. If the full 50 to 54 Mc. band is desired, the Q should be reduced to about 12, which would mean less image interference rejection. In the wider band design, the total capacity would be 12 mmf. instead of 20 for the single-ended circuits for the same impedance of about 3300 ohms. More turns would be needed in the coil to tune to the 50 Mc. band when less capacity is used. At W6AJF location, a channel 2 t.v. station practically wipes out the high



Top and bottom views of the 50 Mc. Nuvistor converter. The circuit is shown in Fig. 1. The 50 Mc. input is on the left and the 14-16 Mc. output on the right end.

end of this 6 metre band, so the band width of about 2 Mc. was used in this converter.

The preselector system consists of two tuned circuits capacity coupled. The grid resistor-capacitor in the r.f. stage is solely for tube protection against fairly high power transmitter feedback in case of faulty antenna relay operation. Operation in the 50 Mc. band requires a low cross-talk front-end design, so cathode bias is used with an external 1000 or 2000 ohm pot in the circuit for gain control.

The r.f. amplifier uses a split plate circuit with two separate variable capacitors for tuning the plate coil to 50 Mc. Adjustment of these two capacitors one way or the other, permits wide band neutralisation of this stage with a fixed one mmf ceramic capacitor. The 5K plate feed resistor also tends to produce some balance in the split circuit, so neutralisation is easily accomplished and holds very well over a wide band of frequencies. The plate circuit can be either capacity coupled to the mixer grid circuit, or link coupled. The latter provides better circuit balance but less image interference rejection since the oscillator is on the low side (36 Mc.).

The nuvistor mixer plate circuit has to operate at very low Q value so a single parallel tuned circuit is difficult to couple into the usual communication receiver. A pi section resonant circuit is much more effective in coupling the mixer plate impedance of several thousand ohms down to the usual 50 or 70 ohms for co-axial connection to the receiver. An inductance of about 12 microhenries with two capacitors forms a pi coupling circuit suitable for Q values of 2 to 5 (needed to pass 14 to 16 Mc. or even higher values). A 12 microhenry r.f. choke is suitable for this coil. The output capacity of 50 mmf, together with a couple of feet of co-axial line, reduces the output impedance to match the receiver input circuit. If a longer line of co-axial is needed, the 50 mmf capacitor should be omitted. A 1 to 10 mmf trimmer can be used to tune the output circuit to the middle of the i.f.

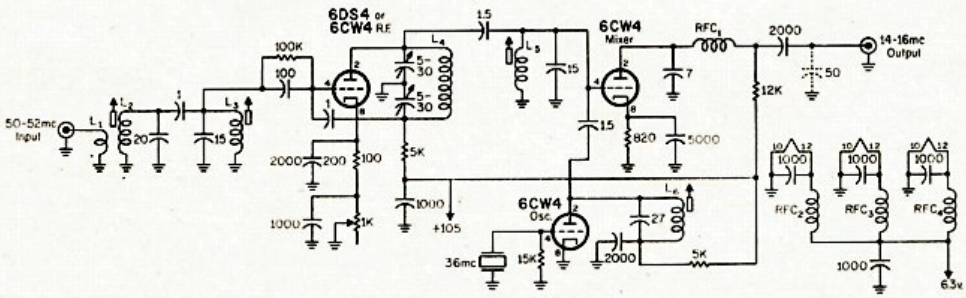


Fig. 1.—Circuit of a 50 Mc. converter using Nuvistor tubes described in the text. All resistors are ½ watt and all capacitors are in mmf.

L1—1 turn 24 g. enamel on cold end of L2.
L2, L3—7 turns 24 g. enamel 3-16 in. long on 0.4 in. diameter, air core.
L4—18 turns 20 g. d.c.c., ¾ in. long, ¼ in. diameter, air core.
L5—6 turns 24 g. enamel, ⅛ in. long on 0.4 in. diameter brass slug tuned form.
L6—8 turns 24 g. 3-16 in. long on 0.4 in. diameter brass slug tuned form.
RFC1—12 μh. or 80 turns 32 g. enamel ¾ in. long ¼ in. diameter.
RFC2, RFC3, RFC4—8 or 10 turns small hook-up wire, ½ in. long, ⅛ in. diameter.

* Reprinted from "CQ," January, 1966.

[1] Cowan Publishing, 14 Vanderventer Ave., Port Washington, L.I., N.Y. 11050.

band in place of the 7 mmf fixed capacitor.

The oscillator is a standard triode overtone type with a 36 Mc. crystal. All of the single-ended coils were brass-slug tuned. However, some circuit loss can be reduced by using "white" coded ferrite slug tuned coil forms of appropriate number of turns to tune to a little above 50 Mc. with the values of capacitance shown in Fig. 1.

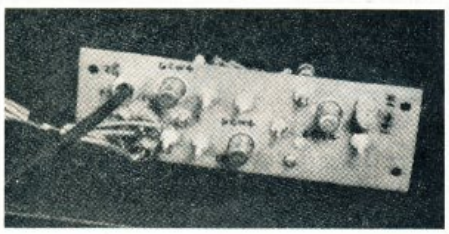
144 Mc. CONVERTER

This converter shown in the photograph and in Fig. 2 covers the 2 metre band of 144 to 148 Mc. It was also built on a 2 x 6 inch piece of copper-clad bakelite. An advantage of this type of construction is that a converter may be changed, rebuilt or discarded without much cost or difficulty. The copper-clad board provides an excellent grounding surface which can be easily soldered to with a small soldering iron. All r.f. ground leads can be made very short which generally means better stability, higher gain, and better sensitivity for weak signals.

The circuit of Fig. 2 shows a total of four tuned circuits at 146 Mc. This is about the minimum permissible in good two-metre converter design. Less may produce excessive image interference problems in most locations. The circuit Q should average about 20. The two grid circuits, r.f. and mixer, will usually be much less due to grid loading and probably will not be over 15. The r.f. plate circuit and second tuned circuit in the three tuned position, can be set up for values of up to 40 or 50 but "unloaded" coil Q values may limit these possibilities. The unloaded Q values should be several times that of the operating Q values in order to minimise tuned circuit losses. Within the limitations set by the passband of four megacycles, the operating Q should be as high as possible in order to provide good image rejection. The image frequencies are 14 to 18 Mc. below the oscillator injection frequency of 130 Mc. or 112 to 116 Mc.

The mixer uses grid leak detection as it is less critical for oscillator injection power than for cathode bias. Its disadvantage is that it is more subject to cross-modulation from strong signals in the two metre band. In some locations, cathode bias detection for mixer action is necessary and some experimenting is needed to get the proper injection voltage. The mixer plate circuit needs to cover from 14 to 18 Mc., which means an operating Q of about 3. The pi-network shown in Fig. 2 accomplishes this effectively and transforms the mixer output load from several thousand ohms down to 50 or 75 ohms. If less than three feet of co-axial is used between the receiver and the converter, some capacitance must be placed across the output jack to make the desired step-down ratio of 6 or 7 to 1.

The oscillator injection of 130 Mc. is obtained by using a 43⅓ Mc. overtone crystal with a single nuvistor tube. The cathode has a low Q circuit resonant around 25 to 30 Mc. to insure oscillation at 43⅓ Mc. and not at the fundamental of around 14½ Mc. The plate circuit can then be tuned to 130 Mc., the third harmonic of 43⅓ Mc. There is enough injection power available so an additional 130 Mc. tuned circuit may be used to insure only 130 Mc. voltage reaching the mixer grid circuit.



Top and bottom views of the 144 Mc. converter. The 144 Mc. input is on the right and the output, 14 to 18 Mc., is taken out on the co-axial on the left.

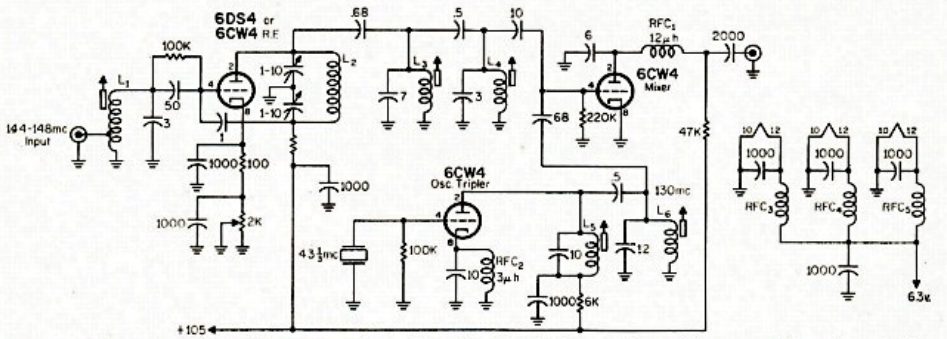


Fig. 2.—Circuit of a 144 Mc. converter using Nuvistor tubes. All resistors are ½ watt and all capacitors are in mmf.

L1—5 turns 20 g. d.c.c. tapped 2 turns up from ground, ⅜ in. long on ¼ in. diameter slug tuned form.

L2—6 turns on 18 g. enamel, ¼ in. long, ¼ in. diameter air wound.

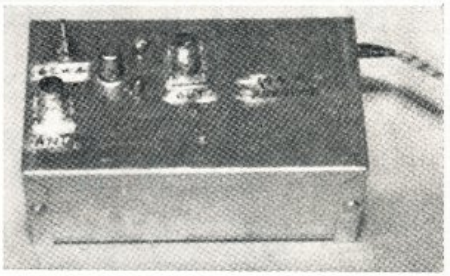
L3, L4—5 turns 20 g. d.c.c., ⅜ in. long on ¼ in. diameter slug tuned form.

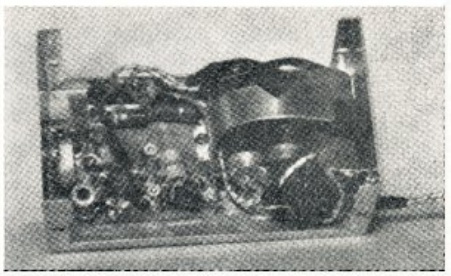
L5, L6—4 turns 20 g. d.c.c., 5-16 in. long on ¼ in. diameter slug tuned form.

RFC1—12 μh. or 80 turns 32 g. enamel, ¾ in. long, ¼ in. diameter.

RFC2—3 μh. or 34 turns 28 g. enamel, ½ in. long, ¼ in. diameter.

RFC3, RFC4, RFC5—8 to 10 turns of small hookup wire, ½ in. long, ⅛ diameter.





Top and bottom views of the 144 Mc. preamplifier.

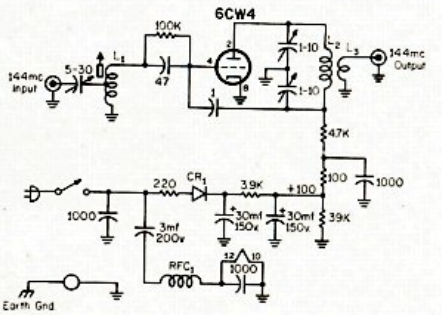


Fig. 3.—Circuit of a 144 Mc. preamplifier. All resistors are ½ watt and all capacitors are in mmf. unless otherwise noted.

CR1—Silicon rectifier, 400 p.i.v. any current rating from 50 mA. up.

L1—5 turns 18 g. enamel, centre tapped, ½ in. long on a ¼ in. diameter slug tuned form.

L2—9 turns 18 g. enamel, ½ in. long, ¼ in. diameter air wound.

L3—1 turn 18 g. enamel to the centre of L2.

RFC1—8 to 10 turns of small hookup wire ½ in. long, ⅛ in. diameter.

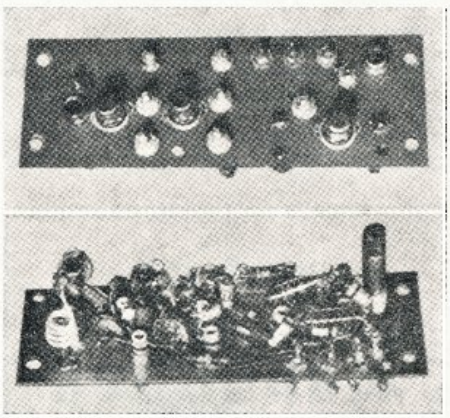
144 Mc. PRE-AMPLIFIER

The noise figure of the 144 Mc. converter is in the neighbourhood of 4 db. Two r.f. stages in the converter will lower this to 3 db. but the added gain of an extra stage may produce excessive cross-modulation from strong signals in or near the two metre band. One method is to use an outboard r.f. amplifier which can be plugged into the antenna lead for reception of very weak signals. Normal operation for contacts up to 100 miles or so from average locations can be done without the preamplifier.

The preamplifier shown in the photograph and in the circuit of Fig. 3 was built with its own power supply in order to see if it would be as good as the 416B preamplifier described in the previously mentioned handbook. The noise figure measured within a few tenths of a db. Since tube life of a nuvistor is apt to be much greater than for a 416B, the later now is in storage at W6AJF.

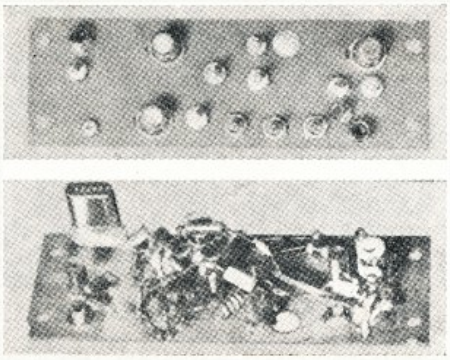
The input circuit is tuned for best noise figure at 144 Mc. by adjusting the slug coil and series antenna capacitor. A noise generator is needed for this purpose since these adjustments usually are not the same as for maximum r.f. gain. The plate circuit is tuned to 144 Mc. by means of the two variable capacitors with one set at a different value than the other in order to get neutralisation. These adjustments can be juggled back and forth until the amplifier does not oscillate and best noise figure is obtained. Grid leak bias was used in order to get best noise figure but this makes the tube subject to cross modulation from local two metre stations. In some locations, cathode bias on the 6CW4 tube would be necessary with probably not over 0.1 or 0.2 db. of deterioration.

The built-in power supply is about as simple as possible. The heater voltage is dropped to about 6 volts by means of a 3 mf. paper capacitor in the 115 v.a.c. line. This method causes quite a time lag in the tube reaching normal operation after the a.c. switch is turned on as compared to the use of a filament transformer. The 3 mf. capacitor takes less space and has no heat loss. The preamplifier uses about 7 mA.



Top and bottom views of the 220 Mc. converter. In the bottom view the multiplier crystal may be seen to the left of the 22.9 Mc. plug-in unit.

of plate current at 100 to 125 volts, so both heater and plate supply may be taken from a receiver, or converter power supply.



Top and bottom views of the 432 Mc. converter. The bottom view shows the input pi-network on the left and the output tank L5 on the extreme right.

220 Mc. CONVERTER

This converter, shown in one photograph and the circuit diagram of Fig. 4, was built for average signal reception in the 220 to 225 Mc. region with an i.f. output of 14 to 19 Mc. For very weak signal reception, a 222 Mc. paramp is used at W6AJF ahead of this and other 220 Mc. converters.

The single tuned double coil circuit in the r.f. stage grid circuit was used to more effectively ground out an i.f. signal. It seemed to be getting through the converter for a period of time during on-air tests. The improvement was not very great and wasn't entirely fixed without the use of a preamplifier, until the commercial station seemed to go out of operation (probably a temporary cure).

The circuit of Fig. 4 is quite similar to that of the 144 Mc. converter except for coil and capacitor values. A 68⅔ Mc. crystal was not available so a surplus 22.9 Mc. one was used. A 68⅔ Mc. crystal could be used with a cathode

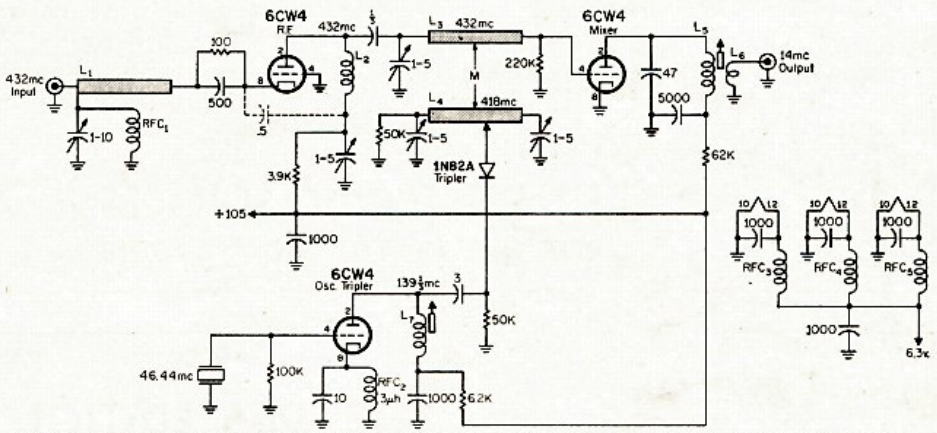


Fig. 5.—Circuit of a 432 Mc. converter. The output with the link coupled circuit shown above is at 14 Mc. with a 1 Mc. passband. For wider coverage the pi-network similar to that shown in Fig. 2 or Fig. 4 should be used. All resistors are ½ watt and all capacitors are in mmf.

L1—⅛ in. wide copper strap, 1¼ in. long.
L2—3 turns ⅛ in. copper strap, ¾ in. long, ⅜ in. diameter.
L3, L4—⅛ in. wide copper strap, 1½ in. long, spaced ½ in. to ¼ in. apart.
L5—25 turns 28 g. enamel ⅜ in. long, wound on ¼ in. diameter slug tuned form.
L6—4 turns hookup wire link on cold end of L5.
L7—6 turns 22 g. enamel, ¼ in. long, wound on ¼ in. diameter slug tuned form.
RFC1—8 turns 20 or 22 g. enamel, ⅜ in. long, ⅛ in. diameter.
RFC2—3 μh. turns 28 g. enamel, ½ in. long, ¼in. diameter.
RFC3, RFC4, RFC5—8 to 10 turns small hookup wire, ½ in. long, ⅛ in. diameter.

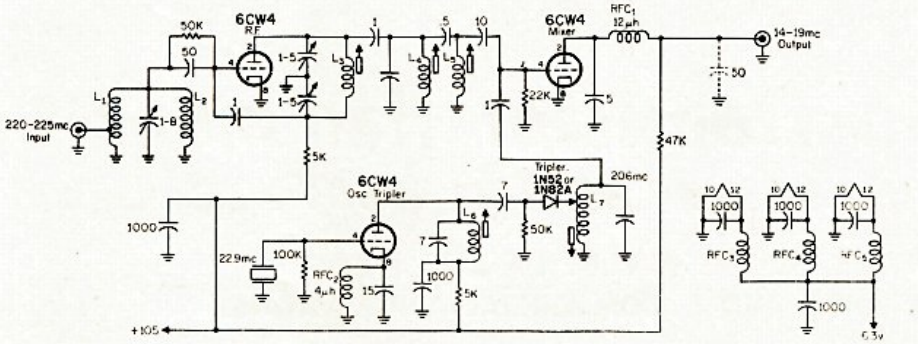


Fig. 4.—Circuit of a 220 Mc. Nuvistor converter with an i.f. output from 14 to 19 Mc. All resistors are ½ watt and all capacitors are in mmf.

L1—4 turns 20 g. d.c.c., tapped 1 turn up from ground, ¼ in. long, ⅜ in. diameter, air wound.
L2—4 turns 20 g. d.c.c., ¼ in. long, ⅜ in. diameter, air wound.
L3—7 turns 20 g. d.c.c., ½ in. long, ¼ in. diameter, air wound.
L4, L5—4 turns 22 g. enamel, ¼in. long wound on 3-16 in. diameter slug tuned form.
L6—12 turns 24 g. enamel ¼ in. long, on 3-16 in. diameter slug tuned form.
L7—4 turns 24 g. enamel ¼ in. long wound on 3-16 in. diameter slug tuned form. Diode tap point chosen for max. output. See text.
RFC1—12 μh., 80 turns 32 g. enamel, ¾ in. long, ¼ in. diameter.
RFC2—4 μh., 40 turns 30 g. enamel, ½ in. diameter.
RFC3, RFC4, RFC5—8 to 10 turns of small hookup wire, ½ in. long, ⅛ in. diameter.

circuit in the oscillator tube similar to that used in the 144 Mc. converter, with the plate circuit tuned to 206 Mc. The use of a 22.9 Mc. crystal meant that an additional frequency tripler was needed. A type 1N52 or preferably a 1N82A diode can be used to triple the frequency to the desired value of 206 Mc. as shown in Fig. 4. Some diodes will give more output when tapped across only part of the 206 Mc. tuned circuit. The value of grid leak and the coupling capacitor to the diode tripler can also be modified to advantage with some types of diodes.

The noise figure runs at about 5 db. as measured here. The image rejection is only fair due to the higher signal frequency as compared to the i.f. value. The paramp solves that problem very well but can only be used over a small part of the 220 Mc. band. Two or even three grounded grid 6CW4 or 6DS4 nuvistor stages with several more tuned circuits would be a more prac-

(Continued on Page 14)

SIDEBAND

Sub-Editor: PHIL WILLIAMS, VK5NN

During April we have seen an upsurge in the use of single sideband on the higher frequency bands, viz. 15 and 10 metres. The CQ World-wide DX Contest was a very good indication that the bands could be worked if the stations were there, and it is a good plan to call CQ on these bands, even if you hear nothing. You may be surprised at the answers which come back to your calls. My own listening has been confined to the use of the G5RV antenna pending the erection of the TA33 tri-band beam for 10-15-20 metre operation. The proper use of an aerial tuning unit on these bands makes the old 80-40 metre aerials quite useful, and the DX which can be worked is surprising.

Most of my listening has been done with a recently completed "Deltahet" front end, feeding into an old and unmodified AR7 receiver using Band C coils for tuning 2 to 3 megacycles. This has been a worthwhile project, and I recommend it to any Amateur who wants to combine a good s.s.b. receiver with one having general coverage. A number of these have been constructed in VK5 by the v.h.f., s.s.b. fraternity, and the units will be on display at the May meeting of the South Australian Division. The Editor may note that it is our intention to collect some data on the various models and send to "A.R." for publication. The Deltahet is an excellent medium for tuning those odd frequencies "coughed out" by v.h.f. converters which frequently use the odd cheap crystals not in demand for multiplication to Amateur bands. It is worth noting that a deltahet, fed by a pair of v.h.f. converters using the same nominal i.f. channel for 52 Mcs. and 144 Mcs., has been connected to two tuners, one for a.m. on 2 metres and the other for s.s.b. on 6 metres. The question of all the "birdies" present was not answered, but I am assured that it worked.

Deltahets have been demonstrated to perform as well as most commercial band-switched front-ends. One well-known sidebander has remarked that, following 5PS' reference to s.s.b. as "the Thing," the "Deltahet" should become known as "the only thing." Why not build one and find out for yourself?

POWER SUPPLIES FOR S.S.B. EXCITERS

Since this column was instigated for the home-constructor, it has resulted in my receiving numerous enquiries from the older a.m./c.w. men wishing to use existing equipment for their s.s.b. exciters. In general this can be done, but the high peak currents drawn by the output stage, pose a few problems worth elaborating.

There are certain basic supplies which are required for most exciters, as follows:—

(1) The 200-250 volt supply for all of the speech amplifiers, oscillators, mixers, and class A driver stage, as well as the screen grids of the output tubes.
(2) The bias supply of 80 to 100 volts for muting, which is divided down to a level of 30 to 50 volts for the AB1 linear amplifier, on "transmit."
(3) The 600-800 volt supply to the plates of the output tubes.

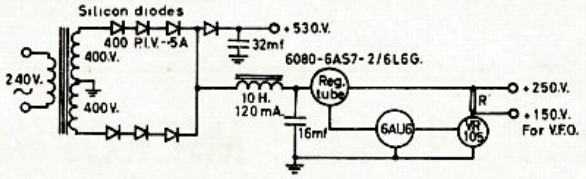


FIG. 1. Regulated dual supply - 250 & 530 V.

There have been designs published for mains power supplies using rectifiers and voltage multipliers direct from the 240 volt a.c. supply. These work very well, but I do not recommend them from the safety viewpoint, and electricity authorities do not approve of such things, either. Provision of a transformer, if only for isolation, is desirable.

Dealing with these supplies in turn, the requirements are, briefly:—

The 250 v. Supply (see Fig. 1)

This may be an electronically regulated supply using a 400-0-400 volt transformer of about 120 mA. rating, and a series tube such as 6AS7, 6080, 12E1 or 2 x 807's. This is the ultimate in the provision of good regulation and low a.c. ripple, and will certainly help with elimination of hum modulation of the modulators and oscillators.

If a large amount of output is not required from the exciter, a supply No. 3 of about 550 volts can be obtained by adding a single rectifier to that shown in Fig. 1. The 32 μF. capacitor gives adequate filtering for the final plate supply and the standing current of 25 mA. or so will not embarrass the supply. The 32 μF. capacity will give adequate dynamic regulation for, say a single 6146 or pair of 807's in class AB1, as the currents will kick up to no more than 50-70 mA. on speech.

An alternative supply without the regulation but with adequate filtering may be obtained from a conventional transformer of 280 to 320 volts per side, with two stages of filtering, the first being a choke input section. Supply for the v.f.o. may be obtained through a dropping resistor with a VR105 regulator tube.

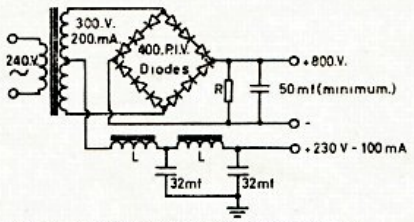


FIG. 3. Economy Dual-voltage Power Supply.

The Bias Supply

Unless a 100 volt tap can be organised on the transformer for the 250 volt supply, the simplest method of providing this is to use a 12.6 volt filament transformer in reverse from a 6.3 volt filament winding as shown in Fig. 2. The circuit is self-explanatory. Suitable regulator tubes for this are the VR90, VR75 or 85A2 (CV449).

The same supply may be used for receiver muting, the negative bias supply being built into the transmitter and switched on with the heater supplies to the final stage. The final is, then, never without bias—a most important point to remember.

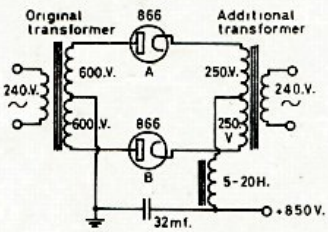


FIG. 4. Use of additional transformer to increase output voltage. (Reverse Anode caps A & B if voltage is subtractive.)

The Final Plate Supply

This needs to be about 800 volts for adequate output from the exciter for "barefoot" operation, i.e. without a linear amplifier to follow. The supply needs to have good dynamic regulation to supply only 25 to 50 mA. of quiescent current, but up to 200 mA. or so in short impulses for, say a pair of 6146's. A large capacitance filter will do this, and 50 to 100 μF. of adequately rated electrolytic capacitance may be used. Static regulation is unimportant so that large choke-input filters are not needed. If the old a.m. modulator supply is to be used for this duty, then the old 866 rectifiers (or even 5R4GY) choke input filter with 8 μF. capacitors may be used, but,

(Continued on Page 10)

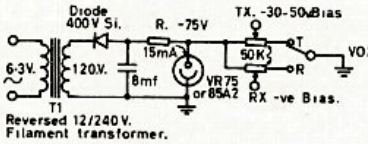


FIG. 2. Bias supply for S.S.B. Linear (Class AB.1) Amplifier.

SIDEBAND

(Continued from Page 9)

first check that the chokes have very low resistance, and the output capacitor could well be increased to 30 μF. or so to provide better dynamic regulation.

An excellent method of using one transformer for the whole transmitter (except bias supply) is to adopt the "Economy" power supply using a single transformer of 270 to 300 volts per side and rated at least 150 mA. This is shown in Fig. 3 and shows a full wave bridge supplying the full high tension voltage, with the 250 volt, well filtered supply obtained from the centre tap. The use of silicon diodes to give peak voltage, i.e. 600 x 1.4 or 840 volts, is essential, as the peak currents drawn by the capacitor are sufficient to take the oxide coating from the filament of most rectifiers. Such rectifiers (valves) will not last very long in this service. Choke input filters are a good proposition for most valve rectifiers where such high peak currents are involved, but of course the transformer voltage should be about 1.1 times the output voltage.

The rule for silicon diodes is to use one diode of 400 v. (peak inverse) rating for every 130 volts of transformer output with a 330K resistor across each diode, and 15 ohms of wire-wound resistor per diode in series with the string of diodes.

Finally, a useful trick for increasing the voltage of a power supply which is on the low side, is shown in Fig. 4. A t.v. type transformer of 250-0-250 volts was used to raise the output from a 600 v. modulator power supply to a useful 850 volts for an s.s.b. exciter. If the voltage looks low, simply change over the anode caps.

Next month: "A Few Thoughts on Crystal Filters."

73, Phil 5NN.

☆

Book Review

TECHNICAL TOPICS FOR THE RADIO AMATEUR

Regular readers of the R.S.G.B. Bulletin will be familiar with the monthly series entitled Technical Topics. Started in 1958, this series of articles attempted very successfully to present new circuits and ideas drawn from various technical publications, together with a few hints and tips, in an effort to keep the average Amateur well informed. The series met with such success over the years that the author, Pat Hawker G3VA, has now produced this book containing the best of the material that appeared in R.S.G.B. Bulletin. It is a worthwhile addition to the library of all Amateurs interested in construction and experimenting with new ideas. The book contains chapters on Semi-conductors, Components and Construction, Receiver Topics, Oscillators, Transmitter Topics, Audio and Modulation, Power Supplies, Aerials and Electrical Interference, and Fault-finding and Accessories.

Publisher, Radio Society of Great Britain; Australian price, $1.90, postage 12c.

Review copy supplied by Technical Book and Magazine Co. Pty. Ltd., 289-299 Swanston Street, Melbourne, C.1.

THE RADIO AMATEUR'S HANDBOOK

This A.R.R.L. publication has been the standard manual for Amateur Radio communication, construction and design for many years.

However, for the past few years each annual issue has been little different from its predecessor. This 1966 edition is the exception. It is sufficiently different in all departments to warrant purchasing, particularly if your present copy is a few years old. The quality of the paper and drawings has been improved, and quite a number of new constructional articles have been included.

Once again transistors have not been given the coverage that one might expect, but this position improves year by year. Likewise, s.s.b. does not receive very much attention but, of course, the A.R.R.L. Single Sideband for the Radio Amateur completely covers this subject. This 1966 edition contains 704 pages with over 1300 illustrations, including some 500 tube base diagrams.

Publisher, The American Radio Relay League; Australian price, $6.10 posted.

Our copies from McGill's Authorised Newsagency, 183-185 Elizabeth Street, Melbourne, and Technical Book and Magazine Co. Pty. Ltd., 289-299 Swanston Street, Melbourne, C.1.

PROJECT AUSTRALIS

As work progresses towards the launching of Australis I, the time has arrived to begin one of the biggest tasks connected with the project—the organisation of ground-based tracking and command stations, world-wide news broadcasts, orbital predictions and the passing on of information to all participating organisations. Newsletters will be prepared once a month, and, as the launch date approaches, their distribution will include all the Project Oscar national co-ordinators in all countries interested in Amateur Radio satellites.

While we will attempt to cover all aspects of the Australis I project in these newsletters, we are only human, and we have only a small administrative staff working on the project. Therefore, any comments or criticisms of these newsletters would be appreciated.

PROGRESS REPORT

The Australis I satellite project is going ahead extremely well. As you have probably seen in the press, successful balloon flights of the 2 metre telemetry (1st May) and the 10 metre beacon (15th May) were recently conducted. These two flights proved the soundness of the Australis system. It is now hoped that the flight model Australis I will be completed by about August. After this, testing of the satellite will be carried out at Salisbury, South Australia, before its shipment to the U.S. for launching.

Most of the parts for the satellite have already been donated by several leading electronics firms. The excellent job done by all states in publicising the project undoubtedly helped a great deal in persuading these firms to "come to the party."

TECHNICAL DETAILS

The technical details of Australis I have now been finalised, apart from one or two minor points. Here, briefly, is a functional description of the satellite:

H.F. Beacon: The h.f. beacon will radiate a c.w. signal on 29,450 Mc., at 250 mW. output. Every 80 seconds the letters VK will be transmitted for 10 seconds, in c.w. Each VK will take 1 second, with a 1-second break between VK's, so that 5 VK's will be sent during the 10-second period. At the end of each 10-second VK transmission, the h.f. beacon will revert to c.w. operation for the next 70 seconds, after which the 10-second VK sequence will be repeated, and so on. Because of the heavy battery drain imposed by the h.f. beacon, it will have to be commanded on and off the ground—it will not be able to run continuously. It is hoped that it will be on for about five out of every 15 orbits that the satellite completes every day. The command programming schedule will be posted to all co-ordinators before the launch.

V.H.F. Telemetry: The v.h.f. transmitter will operate on 144.050 Mc. and will be modulated by an 8-channel audio tone telemetry system. The eight telemetry channels will comprise two temperature sensors, a battery voltage and a battery current sensor, two horizon sensors, a magnetic coil attitude sensor and the VK keyer. Each sensor will be sampled for 10 seconds. At the end of each 70-second telemetry read-out, the VK keyer will operate for 10 seconds at the rate of 1 VK each second, with a 1-second pause between each VK. The system will operate in sequence with the h.f. beacon, so that the VK's will appear on the v.h.f. telemetry at the same time as they appear on the h.f. beacon. The v.h.f. telemetry will be transmitted continuously, from launch until the battery is exhausted, approximately two to three months after launch.

Command System: The command receiver and command decoder will operate continuously, from launch until the satellite's batteries are exhausted. The command receiver will also operate on the 2 metre band. The function of the command system is to allow the h.f. beacon to be switched on and off, so that Amateurs around the world can be given an opportunity to monitor the beacon and, it is hoped, use it as an aid in predicting 10 metre band openings. Unless this beacon is commanded off when necessary, the satellite's batteries will be exhausted within a few weeks.

Other Details: Australis I will be an aluminium box-shaped satellite, measuring 17.5 by 12 by 6.5 inches. Four ¼ wave dipole antennae will serve the telemetry transmitter and the command receiver. A loaded dipole will be used for the 10 metre beacon. The satellite's battery will have a capacity of 1.15 kilowatt-hours and will weigh 21 lb. The total weight of the satellite will be 35 lb. A paint pattern on the outside surface of Australis I will be designed to keep the internal temperature of the satellite at approximately 20 degrees C. No solar cells will be carried on Australis I, because of their very high cost at the present time, and their unavailability in Australia. Because this first satellite is an engineering test vehicle, the lack of solar power is of little importance, as all the necessary data on the performance of the satellite can be obtained during the two to three month lifetime of its chemical batteries.

Australis I will carry a pair of small bar magnets, in an attempt to align one axis of the satellite along the Earth's magnetic lines of force. If this can be achieved it will reduce the fading of signals from the satellite, caused by random tumbling as it orbits the Earth. Data on the performance of this system will be transmitted via the v.h.f. telemery system.

Australis I will be launched from the Western Test Range, California, into a near-circular orbit, about 500 miles above the Earth. Each orbit will take about 1 hour 42 minutes and the orbit will take the satellite between 70 deg. north latitude and 70 deg. south latitude. In this orbit it will cover most of the populated areas of the world at least once a day.

GROUND SUPPORT PLANS

You will appreciate that any satellite launched into orbit is useless unless there is an effective ground support system to track, command and gather data from it. Project Australis is anxious that the State Oscar co-ordinators should begin thinking about tracking the command stations in their states; we are working on the philosophy that there should be at least two primary stations in each state that will be able to receive the v.h.f. telemetry data from the satellite, monitor the h.f. beacon performance and, when necessary, send commands to the satellite to switch the h.f. beacon on and off.

Orbital computations for Australis I will be produced by Project Australis, using the University's IBM 7044 computer to process tracking data supplied by Amateur stations in VK and around the world. This orbital data will be broadcast daily and mailed weekly to all state and national co-ordinators. It is expected that the broadcasts will begin about a month before the launch. They will be on 30, 40 and 20 metres and will probably originate in VK3, although DX-ers in other states may be interested in helping with the transmission of the broadcasts.

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Trade Review

TOROID BALUNS

"A. & R. Transformers" are now producing a range of "Baluns" suitable for use with transmitting and receiving antenna systems including mobile whips.

There are seven types, all epoxy resin encapsulated and suitable for outdoor use.

Types are available for most of the usual impedances with either S0239 or L604/S type sockets.

Frequency range is 3 to 30 Mcs. and power rating 200 w. or 400 w. p.e.p.

We received two of these transformers types 350A and 355C for inspection and test, and while there were not enough antennae to fully test the samples on the air, the 350A type was tried using co-ax. to feed a 7 Mcs. and 28 Mcs. dipoles, and in both cases no difficulty was experienced in loading the transmitter into each antenna with low s.w.r.

The 355C transformer was then tried using two mobile whips resonant at 7 Mcs. and 3.5 Mcs., and when thinking back to when these whips were originally made, and matched to the feed co-ax., then considering the ease with which this unit did the job, the only wish was that they had come along sooner.

From the results obtained from these two units they could be recommended for use in antenna matching and feeding within their specifications.

For further details see "A. & R. Transformers'" advertisement in the May issue.

VK2 DIVISION

Our thanks to everybody who inquired about a copy of the catalogue. These are still available if you have not sent for one yet. A new series in the catalogue will be produced towards the end of this year.

Our special for this month is 2 metre beams. A pair (2) of four-element yagi's cut for the 2 metre band. They are the last of a special order made for the W.I.A. by a local t.v. antenna firm. Same construction as t.v. aerials, they can be folded up which makes them ideal for portable use. They were $8 each but to clear they have been reduced to **$10 a pair f.o.r. Sydney.** Approx. weight 10 lb. packed in carton. Offer will not be repeated so do not delay.

Twenty sets only to clear at $10 a pair (f.o.r. Sydney). Inquiries to: Radio Equipment Store, Wireless Institute Centre, Crows Nest, N.S.W.

* * *

The VK2 Division has conducted a correspondence course for the A.O.C.P. exam. for many years. If you are unable to attend a local club for classes may we suggest that you enrol with us. There are 50 lessons in the course and there are questions at the end of each paper. The total cost is $36 or in three stages at $14 each. Attention club committees, if you conduct your own classes you may purchase sets of lecture notes. All inquiries should be directed to the Course Supervisor, Wireless Institute Centre, Crows Nest, N.S.W.

TECHNICAL ARTICLES

Readers are requested to submit articles for publication in "A.R.," in particular constructional articles, photographs of stations and gear, together with articles suitable for beginners, are required.

VK-ZL-OCEANIA DX CONTEST, 1966

N.Z.A.R.T. and W.I.A., the National Amateur Radio Associations in New Zealand and Australia, invite world-wide participation in this year's VK/ZL/Oceania DX Contest.

Objects: For the world to contact VK/ZL/Oceania Stations and vice versa. **Note:** VK and ZL stations, irrespective of their location do **not** contact each other for contest purposes.

When? Phone: 24 hours from 1000 G.M.T. Saturday, 1st October, to 1000 G.M.T. Sunday, 2nd October.

C.w.: 24 hours from 1000 G.M.T. Saturday, 8th October, to 1000 G.M.T. Sunday, 9th October.

RULES

1. There shall be three main sections to the contest—
   (a) Transmitting Phone.
   (b) Transmitting C.w.
   (c) Receiving — Phone and C.w. combined.

2. The contest is open to all licensed Amateur transmitting stations in any part of the world. No prior entry need be made, Mobile Marine or other non-land-based stations are not permitted to enter.

3. All Amateur frequency bands may be used but no cross-band operation is permitted.

4. Phone will be used during the first week end and c.w. during the second week end. Stations entering both sections must submit separate logs.

5. Only one contact on c.w. and one contact on Phone per band is permitted with any one station for scoring purposes.

6. Only one licensed Amateur is permitted to operate any one station under the owner's call sign. Should two or more operate any particular station, each will be considered a competitor and must submit a separate log under his own call sign. (This is not applicable to overseas competitors.)

7. Entrants must operate within the terms of their licences.

8. **Cyphers:** Before points can be claimed for a contact, serial numbers must be exchanged and **acknowledged.** The serial number of five or six figures will be made up of the RS (telephony) or RST (c.w.) report plus three figures which may begin with any number between 001 and 100 for the first contact and which will increase in value by one for each successive contact. E.g. If the number chosen for the first contact is 021, then the second must be 022 followed by 023, 024, etc. After reaching 999, start again from 001.

9. **Scoring:** (a) **For Oceania Stations other than VK/ZL:** 2 points for each contact on a specific band with VK/ZL stations; 1 point for each contact on a specific band with the rest of the world.

(b) **For the rest of the world other than VK/ZL:** 2 points for each contact on a specified band with VK/ZL stations; 1 point for each contact on a specific band with Oceania stations other than VK/ZL.

(c) **For VK/ZL stations:** 5 points for each contact on a specific band and in addition, for each new country worked on that band, **bonus** points on the following scale will be added:—

1st	contact—	50	points.
2nd	„	—40	„
3rd	„	—30	„
4th	„	—20	„
5th	„	—10	„

For this purpose the A.R.R.L. countries list will be used with the exception that each call area of W/K, JA, SM, UA will count as "countries" for scoring purposes as indicated above.

10. **Logs:** (A) **Overseas Stations:**

(a) Logs to show in this order—date, time in G.M.T., call sign of station contacted, band, serial number sent, serial number received, points, **underline** each new VK/ZL call area contacted. Separate log for each band.

(b) **Summary Sheet** to show call sign, name and address **(block letters)**, details of station, and, **for each band,** QSO points for that band, VK/ZL call areas worked on that band. "All-band" score will be total QSO points multiplied by sum of VK/ZL call area on all bands while "single band" scores will be that band QSO points multiplied by VK/ZL call area worked on that band.

(B) **VK/ZL Stations.**

(a) Logs must show in this order—date, time in G.M.T., call sign of station worked, band, serial number sent, serial number received, contact points, bonus points. Use a **separate log for each band.**

(b) **Summary** to show—name and address in **block letters,** call sign, score for **each band** by adding contact and bonus points for that band, and "all band" score by adding the band scores together, details of station and power, declaration that all rules and regulations have been observed.

11. The right is reserved to disqualify any entrant, who, during the contest has not strictly observed regulations or who has consistently departed from the accepted code of operating ethics.

12. The ruling of N.Z.A.R.T. Executive Council will be final.

13. **Awards. VK/ZL Stations:** N.Z.A.R.T. will award certificates to the top scorer on each band and the top scorer in each VK/ZL district and silver-mounted plaques to the top ZL scorers in both the phone and the c.w. sections.

Overseas Stations: Certificates will be awarded to each country (call area in W/K, JA, SM, UA) on the following basis:—

1. Top scorer using "all bands."
2. Top scorer on individual bands.
3. Other certificates may be awarded to be determined by conditions and activity.

14. Entries from **VK/ZL Stations** should be posted direct to N.Z.A.R.T. Contest Manager, 152 Lytton Road, Gisborne, New Zealand, to arrive not later than 31st December, 1966.

Entries from **Overseas Stations** should be posted to N.Z.A.R.T., Box 489, Wellington, New Zealand, to arrive not later than 21st January, 1967.

S.W.L. SECTION

1. The rules are the same as for the transmitting section but it is open to all members of any S.w.l. Society in the world. No transmitting station is permitted to enter this section.

2. The contest times and logging of stations on each band per week end are as for the transmitting section except that the same station may be logged twice on any one band—**once on phone and once on c.w.**

3. To count for points logs will take the same form as for transmitting—as follows—date, time in G.M.T., call of the station heard, call of the station he is working, RS (T) of the station heard, serial number **sent** by the station heard, band, points claimed. Scoring is on the same basis as for transmitting section and the summary should be similarly set out.

4. Overseas Stations may log **only** VK/ZL stations but VK receiving stations may log overseas stations and ZL stations while ZL receiving stations may log overseas stations and VK stations.

5. Certificates will be awarded to the top scorer in each overseas scoring area and in each VK/ZL call area.

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R.D. CONTEST RULES

Readers are asked to note that the Rules for the R.D. Contest published last month are almost identical to those for the 1965 Contest. Federal Convention ruled that the rules be changed, but this was not possible in the time available between the end of Convention and the publication deadline.

Anyone with thoughts on how limited licensees should participate in this most popular Australian Contest are asked to communicate with the Federal Contest Manager, 55 Moulden Ave., Mt. Yokine, W. Aust.

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ADDITIONAL NATIONAL FIELD DAY RESULT

VK3LC:—Sect. D, 24 hr., 4 operators, comm. equip., 170 contacts, 1505 points.

NUVISTOR CONVERTERS

(Continued from Page 7)

tical method of getting good sensitivity, better image rejection, and complete coverage from 220 to 225 Mc.

432 Mc. CONVERTER

This converter has about as few tubes as can be used for 432 Mc. converter service with crystal control unless one goes to transistors. The converter was built on a 2 x 6 inch copper-clad board with three nuvistor tubes and a diode frequency multiplier. The noise figure seemed to run about 6 db. which could be reduced to about 5 db. by using a nuvistor preamplifier on a separate copper-clad board.

The r.f. stage in Fig. 5 is a grounded grid type in which an attempt was made to reduce regeneration by a small feedback capacitor from plate circuit to cathode. The small trimmer from antenna jack to ground seemed to solve the problem quite effectively and permitted the use of a 432 Mc. paramp ahead of this converter. No regeneration problem was noted when the converter was loaded by a 50 ohm antenna system instead of the paramp.

For best noise figure, the 50 ohm antenna impedance should be stepped up to over 100 ohms for connection to the cathode of a grounded grid 6CW4 tube. This is accomplished by means of a pi circuit consisting of the antenna variable capacitor, the $1\frac{1}{4}$ x $\frac{1}{8}$ inch copper strap and the input capacitance of the tube.

The r.f. stage plate circuit consists of a three-turn coil about $\frac{3}{4}$ inch long and $\frac{3}{8}$ inch diameter made of some more $\frac{1}{8}$ inch wide copper strap. The circuit was capacity coupled to a pi circuit into the mixer grid. Another pi circuit tuned to 418 Mc. was inductively coupled to the grid pi circuit by spacing it about $\frac{1}{4}$ to $\frac{1}{2}$ inch.

The mixer plate circuit was a parallel tuned circuit peaked at 14 Mc. since all stations in this operate close to 432.0 Mc. If wide band coverage is desired, a low Q pi system similar to that shown in Fig. 4 or Fig. 2 should be used. The parallel tuned circuit is only good for about a 1 Mc. passband at 14 Mc.

The crystal oscillator is similar to that of Fig. 2 with a cathode circuit resonating between the fundamental and third overtone of a 46.44 Mc. crystal. It was also found that a seventh overtone crystal marked $139\frac{1}{3}$ Mc. oscillated quite well in this circuit. The $139\frac{1}{2}$ Mc. plate circuit drives a 1N82A tripler to provide output on 418 Mc. The diode tap on the 418 Mc. line and coupling to the mixer grid line have to be experimentally set for best weak signal response at 432 Mc. A signal generator or a noise generator can be used in these tests.

In all of these converters, power connections were made to 0.001 mf. feed-through capacitors in order to prevent stray signal pick-up. Double shielded small co-axial lines should be used between the converters and the communications receiver, so strong signals in the 14 to 18 Mc. region will not be troublesome. ●

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Publications Committee Reports That . . .

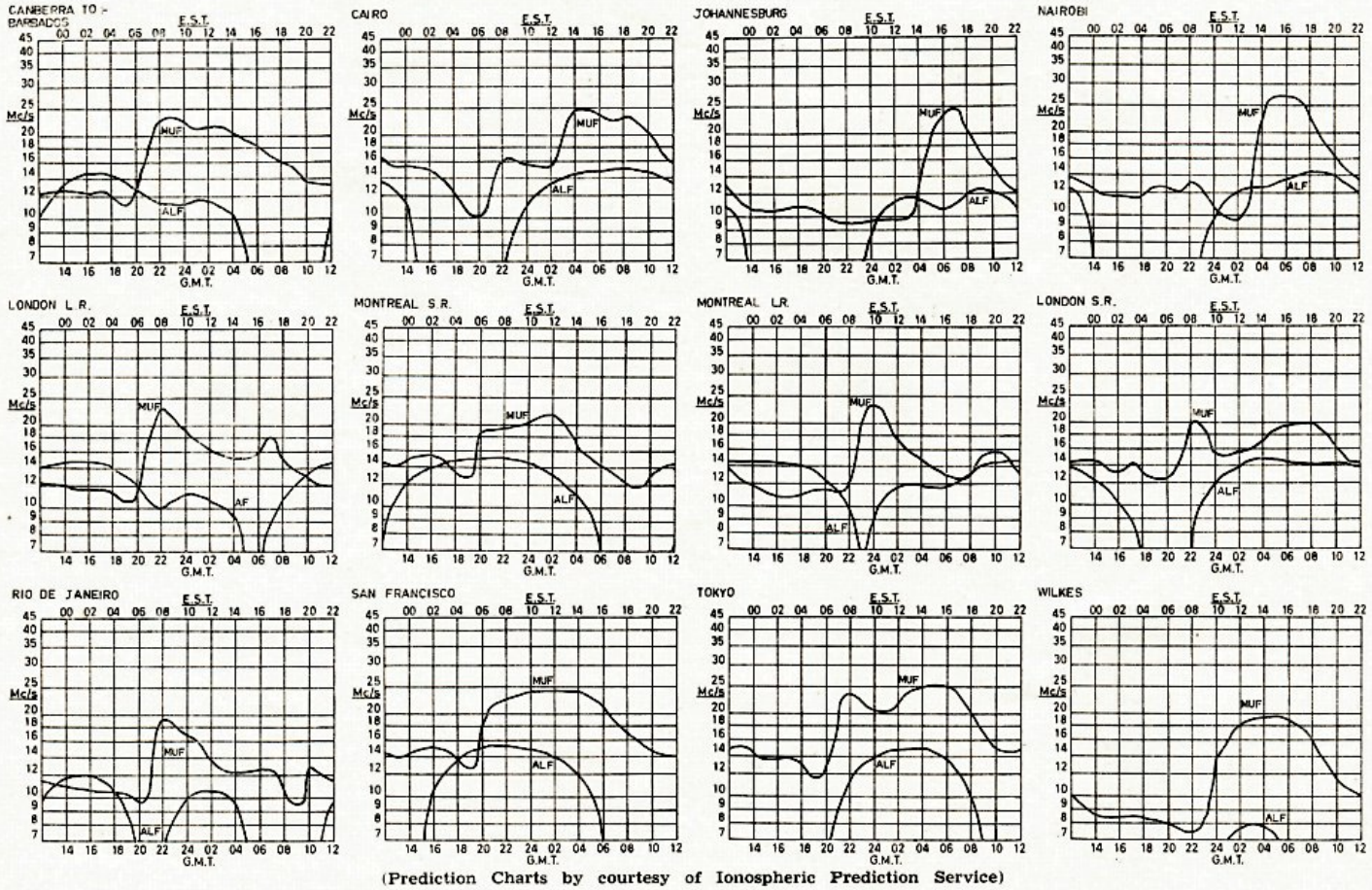
At the June meeting the committee considered correspondence from: VKs 2ADA, 2APS, 2ZTM, 2ZVC, 3UG, 3AHT, 3ACS, 6AG, 6DA, 6EI. Technical articles were received from VKs 2SA (2), 3XY, 3ZRY, 4AT and W2WLR. A number of these letters were in response to our request for comments on the Prediction Charts, and steps are being taken to comply with the suggestions received.

The Circulation Manager reported that mass deletions have been received from VK2, VK3 and VK4 who have deleted all non-financial members in their mailing lists. These deletions will take effect with the August issue of "A.R." The committee decided that only sufficient copies of August "A.R." to meet orders will be printed, hence there will be no copies available for anybody who misses out through non-payment of subs.

Further consideration was given to the Call Book, and size and format agreed upon. A date for publication has been tentatively set subject to arranging with the printer a date by which copy will be required. When this aspect is finalised all Divisional Secretaries will be advised by mail, with a request to send us firm orders.

Some notes have not arrived at the copy date and have therefore been omitted. All contributors are reminded that copy date as from now is the 5th of the month, notes arriving after the fifth will be either held for the following month or omitted as the contributor wishes, provided we are advised in time what action is desired.

PREDICTION CHARTS FOR JULY 1966



(Prediction Charts by courtesy of Ionospheric Prediction Service)

DX

Sub-Editor: ALAN SHAWSMITH, VK4SS
35 Whynot St., West End, Brisbane, Qld.

Reports of opening and DX worked are down somewhat this month. The winter hibernation perhaps when a warm bed is more desirable than the sometimes chilly shack, especially if the bands appear quiet. However, some good prefixes can be landed on both 7 and 14 Mcs.

NOTES AND NEWS

Heard Is. More than one rumour is to hand re activity from this wind-torn and surf-buffetted spot. It is said that Don W9WNV might try and take the ship leaving Malagasy Rep around 15th June and which should arrive at Heard about July. (Unofficial.)

Japan. Report to hand states that Japan will issue new prefixes commencing sometime July. JH1AAA through JH1XZZ for individual calls. JH1YAA to JH1ZZZ for club stations.

Andaman Is.: VU2DIA is said to QRV on 14,160 around 0130z. Length of stay not known.

Vietnam: K1YPE/XV5 is sometimes heard on 14 c.w. and a.m. near low end of phone band. Try listening after 0700z. Also around 2230z.

Tristan Da Cunha: Expected to be s.s.b. activity from here by the time this reaches you.

Rockall: Several attempts have been made to put out a good burst of activity from this difficult spot. Latest information has it that a group of R.A.F. ops. intend to do a one-day stint here in July. Lloyd and Iris, W6KG and WB6QEP respectively hope to go along also.

CR7GF Jose expects to be on Comoro and later Aldabra. July onwards. QSLs for FH8 go to W6LDA and the VQ9 stint if it comes off will go via YV5 bureau.

Ethiopia: ET3AC now on 14 s.s.b. Says QSLs for all QSOs after May 8 go via W4NJF.

Senegal: 6W8DD regularly on 14,050 at 2200z and 6W8DG is also expected to open up around the same frequency very soon.

Tchad: TT8AB, 21,280 at 1900z. On quite often.

Montserrat: VP2MW will be active for some considerable time. Mode 14 s.s.b.

Afghanistan: YA1KC, 14,215 s.s.b. YA1AW, 14,230 daily, 0130-0400z.

Trinidad: 9Y4VT on daily 14,230 around 2300z. QSL Box 149, San Fernando.

Macao: CR9AH operates now on 14,196. QSL W7ZAS.

Trucial Oman: MP4TBO and TBV on daily, 14,198 at 2230. QSL to VE1AKZ.

Basutoland: ZS8L operates 14,105 at 1800z. QSL Box 194, Maseru.

Rhodes: SV0WU very active as of now, 14 s.s.b. 1300z.

Volcano Is.: KG6IC active, s.s.b., 14,250 1200z.

Ross Is.: KC4USX, 14,315, 0700z. Will be active till October. QSL K1NAP.

Seychelles: VQ9BC on now 14 s.s.b./c.w. QSL Box 110, Mahe.

Aleutian Is.: WA2WVV/KL7, WA6YWT/KL7 are now active from Shenya AFB.

South Orkneys: LU1ZG on often 21,251 c.w. at 1700z.

Ivory Coast: TU2AN, 21,275, 1900z.

Jan Mayen: LA5CI and several others active. Try 14,250 s.s.b. 2030z.

Albania: Did you work ZA2AA? Sorry, reported as a pirate.

Tunisia: F7EU is trying to obtain a licence to operate from here. June/July.

Rio De Oro: Plans to make it from here have gone astray. Trip now cancelled.

Nigeria: News item to hand says that 5N2 operation has been under suspension since beginning of year. Reason given, reassignment of calls in alphabetical order. (Unofficial.) Activity expected to recommence any time now.

Formosa: BV1USA and BV1USF both QRV 14 s.s.b. from 1300z regularly.

Kuria Muria: Ray VS9ARV is expected to activate this one in early August. Call will be VS9HRV. Don't miss it. All bands and modes.

French Somali: Smitty 6O1AU plans to sign FL8AU June into July. No information on duration of this one. Bands 7 and 14 s.s.b./c.w.

British Phoenix: Marty Blakstone says he will operate from here next October. Keep in mind. Mode s.s.b./c.w.

Egypt: Butz SU1DL on 14,008. Not very regular, but Bill VE1AED. SU on nightly 14,220 from 0500z. QSL to VE1AED.

Congo Rep.: Stan TN8AF is very busy on 14,055, approx. from 2000z.

Nepal: Father Moran 9N1MM comes on around 0000z on 14,210 s.s.b. QSL W3KVQ/2.

Bahrein: MP4BBA. Club stn. 21 a.m. most days.

Br. Honduras: VP1HB s.s.b. low end. VP1LP 21 c.w. On regularly.

Guernsey Is.: Dick GC8HT, who will operate until end of this year 1966, sends in a long and complex list of his daily schedules and band operating times. Far too complicated to list fully here. However, on a daily basis he indicates he will operate in the following manner: Sunday: 14,133, 14,242, 1400z. Monday: 14,133, 14,242, 0900z. Tuesday: 14,133, 14,242, 1915z. Wednesday: 21,013, 21,333, 28,013, 28,533, 0900 and 1400z. Thursday: His day of rest. Friday: 3513, 3773, 7013, 14,013, 14,113, 1400z. Saturday: 3513, 3773, 7013, 7033, 0630z. Equipment is NCX5 Barefoot. 150 w. c.w. 200 p.e.p. Antennae V's and a Rhombic to the west. Just keep listening on the frequencies given on the stated days and you must run across him. If this doesn't suit you send him an aerogram and he will come up on special sked for you. QTH La Cour de Longue, St. Saviour's, Guernsey, C.I. (via U.K.).

If you want an air mail reply to your QSL or letter add 3IRC.

(By courtesy VK3ARX. Thanks Rick O.M.)

Stop Press: DXpedition by **CR7GF** to Comoro and Aldabra has been brought forward by 3 weeks if all goes according to plan.

ACTIVITIES

Chas. VK4UC reports conditions being quiet but works the following 20 c.w.: XE1OE 0430, OK1NE, OK2QR 0500z, OH6WW, OH2ER 2200z, DM2CEL 0700, F8IH 0730, XE1CE 6000z, HI8XAL 0615z, VK9DR 1040z, PA0LEN 0600z, etc. QSLs received: UM8AP, KX6SX, 9M8RS, VK9DR, KG4AA, VR1Z, VK0MI, CR9AH, GW3AQV, CE4AD, I1CZE, ZC4CI, etc.

Chas. says that YS1IGM and CT1DJ are both very active daily 20 s.s.b. 0630z.

QTHs

6O6BW via W4HKJ, 5U7AH via K9EAB, 6O1ND via W1WIQ, 5J3LR via W2CTN, 5B4TC via W2CTN, 4X0TP via VE3ACD, VQ9HD via G3PEK, 3L4A via ZL3IA, 3V8CA via W8UTQ, 4S7GE via G3JTG, YJ1JG via K7GGN, XZ2TZ via W4ECI, OH0VF via OH5VD, SU1AQ via 5Z4IV.

SUMMARY

Don VK3ZIE, who is ex-VK0DS Wilkes and Mawson 1962-1965, writes to say that he has now QSL'd 100% his 800 odd Antarctic QSOs to the various bureaux. Please check with your local bureau manager before writing Don. He thanks all those who have QSL'd promptly.

Don also raises the matter of piracy of his call. Immediately after he was QRT in Mawson he heard someone using VK0DS and has received QSLs for QSOs he did not make. (The price of status call O.M., even I rate from time to time.) So if your log shows you worked Don on Mawson 1964 and no QSL is forthcoming, draw your own conclusions. QTH for further information is 49 Cookson Street, Camberwell, E.6, Victoria.

Mention has often been made of the fast changing aspects in "A.R." However, besides those of the abstract, electronic sophistication has re-moulded drastically the physical proportions of our equipment.

Back in the days when many of the present O.T.'s began, the efficiency and know-how being what it was, it needed a rack and panel (or maybe two of) weighing about a quarter of a ton to put out 50 watts (the then licensed maximum) on one or two bands. Now nearly eight times as much power can be produced from a lightweight unit about the size of two boot boxes. However, on entering the modern shack one is struck with what might be termed, the sense of the absurd. In previous days the Ham looked as though he was controlling something, but now as one delightfully ignorant s.w.l. said on a recent shack visit, in which an oversized O.M. was hypnotically drooling over an undersized box. "Is that all there is to it?"

OCEANIA NEWS

DX items from this area are always in demand. Any unusual call is avidly sought after and I must contribute my share on an exchange basis. So please fellars any rumour, snippet, item or fact on doings in this area let's have it. If this typing is irregular it's becuse I'm down on my knees pleading.

My sincere thanks to LIDXA, FLA. DX'er, "AIR WAVES," OH2YV, VK4UC, VK3ARX and s.w.l. C. Thorpe for items and bulletins received.

73, DX, Good listening. Al VK4SS.

AMATEUR FREQUENCIES:
USE THEM OR LOSE THEM!

CONTEST CALENDAR

2nd/4th July: Venezuelan Independence Contest (Phone only).

9th/10th July: R.S.G.B. 1.8 Mc. "Summer" Contest.

13th/14th August: Remembrance Day Contest.

10th/11th September: W.A.E. Contest (Phone).

1st/2nd October: VK/ZL/Oceania DX Contest (Phone).

8th/9th October: VK/ZL/Oceania DX Contest (c.w.).

15th/16th October: R.S.G.B. 21/28 Mc. Telephony Contest.

29th/30th October: R.S.G.B. 7 Mc. DX Contest (Phone).

12th/13th November: 7 Mc. DX Contest (c.w.).

10th Dec., 1966, to 15th Jan., 1967: Ross A. Hull Memorial Trophy V.H.F. Contest.

11th/12th Feb., 1967: John Moyle Memorial National Field Day Contest.

W.I.A. D.X.C.C.

Listed below are the highest twelve members in each section. New members and those whose totals have been amended will also be shown.

PHONE

Call	Cer. No.	C'nt-ries	Call	Cer. No.	C'nt-ries
VK5MS	24	330	VK4HR	12	265
VK3AHO	51	323	VK2JZ	61	263
VK6RU	2	313	VK2ADE	65	239
VK5AB	45	312	VK3TL	62	237
VK6MK	43	310	VK2AAK	58	219
VK4FJ	21	292	VK6KW	4	211

C.W.

Call	Cer. No.	C'nt-ries	Call	Cer. No.	C'nt-ries
VK3KB	10	340	VK3NC	19	286
VK3CX	26	313	VK3AHQ	79	281
VK2ADE	81	313	VK2EO	2	279
VK2QL	5	308	VK3ARX	66	271
VK4FJ	29	308	VK6RU	18	265
VK2ADE	81	308	VK4HR	8	262
Amendments:					
VK3RJ	42	240	VK4UC	84	106

OPEN

Call	Cer. No.	C'nt-ries	Call	Cer. No.	C'nt-ries
VK2ADE	28	331	VK4HR	7	294
VK2AGH	83	323	VK2VN	18	290
VK6RU	8	320	VK3NC	77	287
VK4FJ	32	315	VK3ARX	102	280
VK6MK	74	309	VK3JA	43	271
VK2ACX	6	300	VK3TL	85	257
New Member:					
VK4PX	101	119			

NEW CALL SIGNS

MARCH, 1966

VK1TW—T. Wooley, 41 Nicholson Cres., Turner.
VK1WW—C. H. G. Armstrong (Sqd.-Ldr.), 6 Plunkett St., Chifley.
VK2BCC—C. R. Christianson, "Lansdown," 11 Manns Ave., Neutral Bay.
VK2ZEH—G. D. Armstrong, 72 Herring Rd., Eastwood.
VK2ZEU—J. E. Rogge, 17 Empire St., Haberfield.
VK2ZFX—R. F. W. Boundy, Station: 25 Russell Ave., Highfields; Postal: P.O. Box 295, Newcastle West.
VK2ZHR—P. Halpin, 19 Morton St., Waverton.
VK2ZIY—C. I. Yandell, 94 Onslow St., Rose Bay.
VK2ZLW—C. I. Wylie, 85 O'Sullivan Rd., Leumeah.
VK3OP—P. L. Brentwood, 14 Leila Rd., Ormond.
VK3VX—A. G. Pither, 3 Riversdale Court, Hawthorn.
VK3AHX—A. L. H. Kissick, Kyvalley, via Tongala.
VK3AIF—J. A. Boell, 6 Wills St., Deepdene.
VK3AJD—W. G. Dunn, 44 Carrathool St., Bulleen.
VK3AJN—R. B. Knaggs, Wangaratta South.
VK3AKM—J. F. Patrick, 15 Loch St., Camberwell.
VK3ALO—A. L. Lowe, Broadway, Wycheproof.
VK3AMK—G. J. Wilson, 7 Norman Ave., Frankston.
VK3AML—A. P. Sanderson, 23 Park St., Elsternwick.
VK3AOU—J. A. Boell, "Wungi," Stradbroke Ave., Cowes.
VK3APU—J. C. Gutcher, 17 Foulds Court, Montrose.
VK3APZ—C. K. Slade, 292 Barkly St., Elwood.
VK3AZC—G. M. Campbell, 37 Essex Rd., Surrey Hills.
VK3AZP—I. E. Stribling, Armytage St., Lorne.
VK3ZAO—R. A. Bailey, 25 Frederick St., Balwyn.
VK3ZFP—O. P. Fudge, 7 Emma St., Caulfield.
VK3ZJW—R. J. Williams, 38 Thomas St., Noble Park.
VK3ZQG—A. Athans, 1381 Malvern Rd., Malvern.
VK3ZQH—R. F. Frost, 699 Whitehorse Rd., Mitcham.
VK3ZRQ—A. G. Birch, 5 Harrison St., Bendigo.
VK3ZTF—P. J. Fitzherbert, Station: 109 Raglan St., Ballarat South; Postal: Maintenance Squadron, R.A.A.F. Base, East Sale.
VK3ZTI—P. D. McKenzie, Flat 2, 3 Mayfield Ave., Malvern.
VK3ZTK—K. G. Middlin, 15a Charman Rd., Mentone.
VK3ZTW—R. B. Adderley, 16 Grange Rd., Frankston.
VK3ZTX—R. J. P. Bruin, 54 Warrigal Rd., Surrey Hills.
VK3ZUP—W. Russell, 33 Irwin Ave., Wangaratta.
VK3ZUT—N. D. Mifsud, 197 Liberty Par., West Heidelberg.
VK3ZWI—Wireless Institute of Australia, Victorian Div., 478 Victoria Parade, East Melbourne.
VK3ZXY—T. J. Leith, 27 Marjorie Ave., Belmont, Geelong.
VK3ZYA—R. D. Young, 28 Walbundry Ave., North Balwyn.
VK4AP—W. H. Lake, Lower Fisher St., Thorneside.
VK4GR—Ipswich Grammar School Radio Club, C/o J. L. Bognuda, Ipswich Grammar School, Ipswich.
VK4LU—P. H. Long, 63 Eyre St., North Ward, Townsville.
VK4NK—D. J. Sparks, 22 Johnston St., Bundaberg.
VK4VP—E. J. V. Willis, 37 Pelham St., Coorparoo.
VK4XZ—W. G. Sebbens, Station: 52 Mosman st., Charters Towers; Postal: P.O. Box 157, Charters Towers.
VK4ZN—W. M. Bryce, 9 Raymond St., North Ipswich.
VK4ZFR—F. E. Roden, 10 Livermoor St., Rockhampton.
VK4ZLS—A. L. Stehn, 210 Alma St., Rockhampton.
VK4ZWI—Wireless Institute of Australia, Qld Div., Station: 54 Bishop St., St. Lucia; Postal: Box 638J, G.P.O., Brisbane.
VK5EV—J. J. Mount, 19 Edgecombe St., Elizabeth Field.
VK5QF—M. B. Fradley, 203 Wright Rd., Valley View.
VK5ZEB—L. A. Bull, 5 Berry Court, Klemzig.
VK5ZIP—I. J. Champion, 53 Victor Cres., Woodville West.
VK5ZLK—J. R. Kampschroer, 23 Sea View Gr., Blair Athol.
VK6EK—E. F. Keagan, 36 Kingsland Ave., City Beach.
VK6JF—J. C. Flower, Station: Portable; Postal: C/o Goldfield Broadcasting Ltd., P.O. Box 440, Kalgoorlie.
VK6LC—R. E. Earle, 84 Evansdale St., Floreat Park.
VK6VB—D. A. Benson, Western Mining Corp. Ltd., Laverton.
VK6ZAQ—D. A. Meadowcroft, 17a Swan View Terr., Maylands.
VK6ZDD—W. G. Dowie, 19 Sadlier St., Subiaco.
VK6ZDU—J. Trenning, Station: Portable; Postal: C/o Ray Geophysics, 273 Hay St., Perth.
VK6ZEI—K. R. D'Arcy, 344 Oxford St., Leederville.
VK6ZFV—D. V. Pryce, 34 Bagot Rd., Subiaco.
VK7ZBJ—B. J. Riddell, 53 Riawena Rd., Montagu Bay.
VK7ZLX—T. R. Briggs, 18 Melbourne St., Launceston.
VK9DW—D. B. Wilson, C/o S.I.L. Ukarumpa E.H.D.
VK9ZAW—A. J. Watson, Christmas Island, Indian Ocean.

APRIL, 1966

VK1CL—C. E. McLachlan, 32 Cockburn St., Curtin.
VK1DZ—D. H. Watkins, 72 Captain Cook Cres., Griffith.
VK1ZAB—G. W. Fletcher, Hotel Acton, Canberra.
VK2ACA—L. R. Hawkins, 611 Kiewa St., Albury.
VK2ACS—H. J. Gale, 2 Koala Close, St. Ives.
VK2ZFI—K. C. Barnes, 67 Sterling St., Dubbo.
VK2ZFN—N. Fiori, 171 Victoria Rd., Punchbowl.
VK2ZGN—J. E. Gelston, Haringel Hostel, Cringila.
VK2ZGP—G. I. Post, 32 Rutherford St., Blacktown.
VK2ZIO—I. W. O'Toole, 78 Gordon Grove Par., Adamstown Heights.
VK2ZKH—K. M. Pitcher, 11 Milton St., Lismore Heights.
VK2ZRQ—R. Mudie, 413 Mona Vale Rd., St. Ives.
VK3AEU—B. A. Stevens, 22 Killerton Cres., W. Heidelberg.
VK3ZQJ—P. J. Jacquemin (recorded as VK3ZQG December, 1965).
VK3ZUD—H. P. J. Monola, 18 Michigan Ave., Corio.
VK3ZWY—W. Yates, 26 Henry St., Highett.
VK4AT—A. J. C. Thompson, Skyring Creek, Pomona.
VK4FA—D. W. Asmussen, 2 Raffles St., Mt. Gravatt.
VK4FS—R. F. Lingham, 183 Margate St., Mt. Gravatt.
VK4NW—F. J. L. Woolnough, 30 Wharf St., Shorncliffe.
VK4ZPE—P. E. Tomlinson, 36 Lavender St., Inala.
VK4ZRB—R. J. Hudson, 19 Sydney St., Eagle Junction.
VK4ZWC—W. E. G. Cockburn, 8 Sackett St., Brighton.
VK5WA—N. A. R. Wilson, 40 Wellington Sq., North Adelaide.
VK5YB—B. A. White, Station: Portable; Postal: Box 228, Keith, Post Office.
VK5ZAW—A. C. Wohlfarth, 2 Sandilands St., Lockleys.
VK5ZLG—G. J. Leedham, 14 Glyde St., Albert Park.
VK6WQ—W. M. F. Wattelworth, 43 Devon Rd., Bassendean.
VK6ZFZ—B. H. Ward, 159 Ardross St., Mt. Pleasant.
VK7TK—A. J. H. Kendrick, 139 Flagstaff Gully Rd., Bellerive.
VK7TM—T. J. Cox, 108 Hampden Rd., Hobart.
VK7ZFM—F. Richelme, 138 Emmett St., Smithton.
VK7ZPT—P. R. Tompson, 13 Richardson St., Dynnyrne.
VK9JS—J. B. Stacy, P.O. Box 32, Mt. Hagen, T.P.N.G.

☆

V.E.R.O.N. (NETHERLANDS)
P.A.C.C. AWARD

Applicants must offer proof of contact with 100 different PA/PI/PE stations.

Normally QSL cards plus 5 IRC's are required but a contest log in the annual P.A.C.C. Contest will count towards the award. If the number of QSLs held plus the number of different, completed PA/PI QSOs claimed in the contest log add up to 100 V.E.R.O.N. will accept the log entries as proof of contact by cross checking with the local stations.

QSLs, contest logs and the 5 IRCs should be sent to V.E.R.O.N. Traffic Bureau, P.O. Box 9, Amsterdam, The Netherlands.

Endorsements are avaliable for 200 and 300 different PA stations worked (P.A.C.C.—200 and P.A.C.C.—300).

VHF

Sub-Editor: CYRIL MAUDE, VK3ZCK
2 Clarendon St., Avondale Heights, W.2, Vic.

Well, news time has come around again and I would like to thank all those who sent in their notes early and special thanks to Colin VK5ZHJ for his neatly printed notes. Activities on the bands have been varied with openings on 2 metres and a new 432 Mc. record.
73, Cyril 3ZCK.

VICTORIA

Activity on both 6 and 2 metres has been poor except for Sunday, 29th May, when 2 metres had a five-hour opening to Adelaide and S.A. In general, at the same time some were trying 432 Mc. Ian VK3ALZ and Mick VK5ZDR made two-way contact on 432 Mc., 5 x 7 for what could be a new record for VK, a distance of some 480 miles. Among stations heard were 5RO, 5ZDR, 5BC, 5ZMJ, 5KM and 5ZC. Bill 3ZBZ claims that he also heard 5ZDR and 3NN. John 3ZDM states that he has heard and worked many VK5 over the past month on 2 metres and the following Melbourne stations on 432 Mc. 3ALZ, 3AUX, 3ZRG, 3ZBZ and 3ZSJ. John 5HP ex-5ZHL and Col 5ZKR have equipment in operating condition for 432 Mc. John continues, all this goes to prove that good conditions do favour us in the winter month and the active stations are justly rewarded.

The VK3 v.h.f. group is planning a convention over the week-end 8th and 9th October, 1966. A committee has been formed and is now making preliminary arrangements. Anyone with suggestions to help this convention to be the best VK3 convention should write to the V.H.F. Convention Secretary, P.O. Box 36, East Melbourne, Victoria. The only other activities in VK3 were the v.h.f. group meeting when Mike 3ZEO gave an excellent talk on the structure of the institute, F.E., F.C. and how they opearted. Mike also spoke on some problems the institute has been working on to assist Amateurs.

The other two activities being the scramble on 2 metres held on the second Sunday of each month at 2045 hrs. and the 2 metre Fox Hunt held on the 4th Wednesday of each month at 2000 hrs. 73, Cyril 3ZCK.

QUEENSLAND

Very little of interest has taken place, apart from the 6 metres Tx hunts. 2 metres is a dead loss for mobiles, even for home stations. With the approach of the winter months the usual decline in activity has taken place. In the past it was thought that during the cold months television was the main attraction, however, from certain observations, it seems clear that this is not the case. Soldering irons are busy in most shacks rebuilding equipment for use in the summer months. There are at least two new 150 w. transmitters nearly ready to be air tested. While on the subject there is a certain speech clipper-filter being used around town which apparently hasn't had a rebuild since it was made ten years ago. While its original bandwidth was 300-3000 cycles, its bandwidth ten years later has changed to 200-500 cycles.

Of some importance is the news that transmitter hunts have again been organised. As 2 metre mobile gear is very rare and as just about everyone has 6 metre mobile gear, 6 metres was the band that was chosen. 2 or 3 element loaded beams or a D.F. loop are used to locate the hidden transmitter. An important departure from the old 2 metre Tx hunt procedure is that the operator of the hidden Tx periodically conducts a "call in" of all cars participating to ensure that no cars go astray.

Some interesting contacts have occurred in the last month. VK4ZTW has been active from Tewantin working into Brisbane on Sunday mornings on 6 metres. George VK4BK ex-VK4ZLG, who works for Radio Station 4BK, is back on the bands after a long absence, working VK4SI and VK4PU in Woombye. ZL1TCK dropped into have a look at the 100 kw. 6 metre Ham station on the hill. Ray VK4ZRM and Lloyd VK4ZLO were both worked on 6 metres from Brisbane while they were enjoying a short holiday on the Gold Coast. Ross VK4ZAT has been active from Brisbane Island on 2 metres. Tom Lane VK4ZAL has not been on 6 metres since TVQ0 began transmission. 73, Peter 5ZPL.

SOUTH AUSTRALIA

Activity during the last month has not by any means stimulated the writer of these notes to launch into any enthusiastic acclaim on behalf of the VK5 v.h.f. fraternity. Whether new equipment is under construction or just plain laziness has set in, remain an unknown quantity. Nonetheless it is an extremely unsatisfactory situation. Apart from a few members of the "old gang," Bob 5ZDX and Mick 5ZDR, it could be said that 6 and 2 in VK5 is dead. When compared to say two or three seasons ago this can easily be substantiated. How about it fellows, please create some activity so that I can provide an interesting cover of VK5 activity.

However, all is not lost as the t.v. group has really been upholding our reputation. Using initiative and enthusiasm the group recently imported the essential components required to construct a colour television receiver. Naturally the midnight oil has been burnt, so much so, that the receiver was completed, aligned and receiving a simulated colour transmission in the shortest of time. Although the writer has not personally witnessed the results of the group efforts he has been led to believe the receiver is a marvel to behold, not unlike the cockpit of a Boeing 727 jetliner. Regardless of looks the results achieved so far have realised great expectations for the future.

Unfortunately the prospect of a colour transmission on 432 megacycles has been dashed as strict laws governing this type of transmission both commercially and on the Amateur bands have prevented any move in this direction.

Nonetheless, undaunted and showing the true Amateur spirit the group are preparing a camera to provide a closed circuit colour t.v. system. Although it could well be expected to be impossible for a single person to undertake a similar project successfully, this group has shown how simple a complex undertaking can be sorted out by pulling together and working as a team. Congratulations fellows!
73, Colin 5ZHJ.

WESTERN AUSTRALIA

Amateurs in W.A. were given good publicity in an edition of the "West Australia" in May when Don VK3HK, Harry VK6HP and Graham VK6ZDB were featured tuning up the equipment to receive "Essa," the American Weather Satellite. They used normal v.h.f. technique but the picturegram unit available used a 1200 cps. motor and as the audio tone from the satellite was 1020 cps some modifications had to be made. The system used was to divide 1020 cps. down to 60 cps. by standard means multiplying to 180 cps. and then mixing to 1200 cps. and amplifying, a total of ten tubes was used. The quality of the pictures was quite acceptable and one was shown over the local t.v. station TVW7. Interest in the receiving method used has been shown by the local weather bureau.

There was a field day on 22nd May and stations heard were 6ZDD on Mt. Solus, 6ZDB on Mt. William and 6LK on Mt. Wells. 6MM was on s.s.b. in the morning and portable on a.m. in the afternoon. Several new stations are rumoured to be building gear and can be expected on in the near future.

Viv 6ZCM had a coronary thrombosis about the middle of May and has a couple of months' sick leave ahead. 6ZAG.

Correspondence

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publishers.

TOUR OF AUSTRALIA

Editor "A.R.," Dear Sir,

During July and August next I expect to be on a tour of a large part of Australia and should be operating portable and mobile s.s.b. in VK3, 5, 8, 4, 2 and back to VK3. The call sign will be VK3UJ with the appropriate suffix and the main operating frequencies will be 3.675, 7.075, 14.125 and 14,210 Mcs. or near each of these.

Times of operation will not be very regular but should be generally around (local times) 8 a.m., 1 p.m. and in the evenings on the most suitable band for the time, conditions, etc.

A rough idea of locations and dates is:

Melbourne to Port Augusta: July 2, 3, 4.
Port Augusta to Alice Springs (on train, no operation).
Alice Springs to Ayre's Rock, etc.: July 6 to 14.
Alice Springs to Darwin: July 15 to 20.
Darwin to Townsville and Cairns: July 21 to August 6.
Cairns to Melbourne: August 7 to August 31.

I hope to have as many contacts as time will permit and a special QSL card is being printed and will be sent to all stations contacted, also s.w.l's who may report and request same.

—Andy Roudie, VK4UJ.

OLDEST ACTIVE HAM?

Editor "A.R.," Dear Sir,

It has occurred to me that it would be very interesting to know who is the oldest active licensed Amateur transmitter in the world.

In Western Australia we have a candidate for this title in the person of an ex-president and life member of the West Australian Division of the Wireless Institute of Australia, VK6WS, who, on the 18th of July next will be 92 years of age.

William Schofield, of 40 Irvine St., Peppermint Grove, West Australia, VK6WS, was active on the lower frequencies from the early 1930s to 1962, except for the war years, and was well known in most parts of the world as "Skipper."

He became blind and had to cease operating on the lower frequencies but is still operating daily on 52 Mcs., entirely by touch. He is in quite good health and his brain is as active as ever.

I would be very interested to have your views on my suggestion.

—W. E. Coxon VK6AG.

PROJECT OSCAR

Editor "A.R.," Dear Sir,

Oscar H.Q. are anxious to know whether there have been any reports of the Oscar IV beacon being heard in VK since 10th April. There have been no reports in VK3 for several months. If anybody has heard the satellite since 10th April, please let me know as soon as possible. I am afraid that we cannot provide any orbital data on Oscar IV—we have had none from Project Oscar for several months. At last report, Oscar IV was still operating erratically, with the beacon cutting into the translator passband every few seconds. Interest in the satellite seems to have died now that there is no apparent hope of the beacon fault correcting itself. However, if any state co-ordinators want orbital data on Oscor IV, please let us know, and we will do our best to get hold of some from Norad.

—Richard Tonkin, Chairman, Project Australis Liaison Committee.

PIRATING OF VK1 CALL SIGNS

Editor "A.R.," Dear Sir,

During the last three years a vast number of QSL cards have arrived and are still arriving at the Canberra Radio Society for stations with VK1 call signs which have never been issued by the licensing authority.

A check of the hundreds of cards received shows no less than 90 different illegal call signs have been used. A check of the cards shows that while Pacific area stations have given strong signal reports to some of the illegal transmitters, indicating that they may be operating from Australia, others have received similar S8 or S9 signals from European and U.S.A. stations. The indications are that a VK1 call sign is popular amongst illicit operators around the world.

The actual number of licensed stations in the Australian Capital Territory is currently 61, of which only about a dozen are active on the h.f. bands with any regularity. It can be seen that there are one and a half times more illegal VK1's than legal operators

All stations are urged to treat with caution all contacts with VK1 stations whose calls do not appear in the latest Call Book but allowing for the possibility of newly issued call signs.

—J. Weatherby, VK1QL, Secretary, Canberra Radio Society.

SWL

Sub-Editor: D. GRANTLEY, WIA-L2022
Alexander Ave., Hazelbrook, N.S.W.

This month we say a temporary farewell to one of our top s.w.l.'s, Peter Drew of VK6, who shortly after you read this will be in the army for a two-year period. His absence will be a great loss to the s.w.l. ranks, for Peter has always been a solid and dedicated listener, and most certainly a brilliant one. He has been a worthy winner of many of our top contests over the past several years, and will be missed in this field alone. The good wishes of all the chaps go to you Peter, and should you return to the s.w.l. field after your discharge, I know that you will be welcomed by not only the VK6 group, but all the others as well.

Occasionally a listener queries a section of the notes as being unnecessary, and this month is no exception. Why print details of QSLs received by listeners? This question has arisen once again and I think requires an answer. For one reason alone we like to let other listeners and Amateurs know who is QSL-ing, and how the cards are being received, this in turn aids others in their pursuit of QSLs. Since I have been writing these notes, at least a dozen chaps, several of them licensed Amateurs have noted where a listener has received a QSL they have been chasing, and by contacting the listener concerned, they have been put on the right track.

DX NOTES. K1SWT is looking for VK contacts on a.m. or c.w., he is on at about 1200z (presumably 14 Mc.) using 90 watts to a DX60 into a joystick. Anybody with cards for this Amateur may send them via Alan Raftery, 22 Princess St., Croydon, S.A. VQ5AX, heard at good strength in VK recently, is Paul Caboche, Box 467, Port Louis, Mauritius. LA1LG/P, LA3P/P, LA5ZJ/P, LA6XF/P and LA8FG/P are all Jan Mayen, whilst LA4FG/P is on Svalbard. VS9MP from the Maldives, says QSL via W2CTN. XV5AA's QSL manager is W4UWC. W1AFZ does not reply to QSLs or reports. New QTH for Hammaralund DXpeditions is Box 7388, G.P.O., Newark, N.J. 07107, U.S.A. KS4AB heard on 7 Mc. c.w. is not genuine. Hammaralund should have the logs of ZD8AR and 4W1AA by now. G8KS will QSL all correct reports submitted to him on behalf of stations for which he is manager. Reception of VK1ATU has been reported from G on 7 Mcs. BY3AAB and BY8SC are reported as working G stations.

NEW AWARDS. The R-150-C. For verifications from 150 countries of which 15 are countries of the U.S.S.R. These must be for QSOs after June 1, 1956, and all phone or all c.w., not mixed. UN1 is counted as UA1. Send a certified list of QSLs (that is a list certified by a radio club or the W.I.A. manager) to Central Radio Club, Box 88, Moscow, U.S.S.R. There is no charge. "Monitor."

OVERSEAS NEWS. Recently we published a short article on Roy Waite of U.S.A., and we are pleased to note in the current edition of "Monitor" that he now has reached the 300 countries verified on phone. I.S.W.L. members who hold their full ticket, have a fine reputation for QSL'ing. Here are some call signs whose holders are members. G3USF, G3KUK, VE3GBB, G3TZI, G3TLG, G3SDM, PY2DBU, WB6NTC, WA9INK, MP4TBU, G3QV, GM3UCI, G3UGH, G3TAS, 6Y5BB, 6Y5MJ, 9K2AU, KW6EK, HA5AWM, DL4AN, MP4TBO, LX3QX, IT1AGA and ZD8TV. If you are sending cards to these chaps via the bureau, mark your cards via I.S.W.L., London.

QUERY CORNER. Bill Jehn, QTH of OX3JV is via SM7ACB. Ernie Luff would like information on any U.S. S.w.l. awards. Wanted, loan of a copy of either June 1962 or June 1964 "A.R." which contains the article on the "like new" mixer for the AR7 Rx. This is required to modify my own Rx to the circuit supplied by 4UC. Bryan Prosser L6028 is looking for tape pals.

LISTENING IN VK0. Recently returned from Macquaire Island is Greg Johnston of VK7. Operating from VK0MI, Greg noted some of the worst dog piles ever when CQ was called on 20 metres. 80 metres is workable each evening when hail and snow is not driving in. VK7 and ZL being the best contacts on this band. Noise at the mainland end tends to make copy difficult on this band. 40 metres is also excellent to the same areas. but as well as this, plenty of really good DX can be worked on c.w. The main DX band, however, is 20 which is really good when open, however, it tends to go out very quickly. Most operating was done on c.w., with triweekly skeds to G land at 0730z, using both modes. Greg says, "open slather down there at week-ends in evening when W's by the thousand fight each other to get in, must be heard to be believed. As the W's fade in and out, the Europeans fade out and in, really heard some rare DX down there." Greg is now QSL manager for VK0MI.

CONTESTS. Don't forget the R.D. Contest is coming up next. We have had good participation over the last few years, and let this one be even better. It is a good contest, and one which provides plenty of operating practice.

AROUND THE SHACKS. L3043 Eric still as busy as ever, has had time to log on 14 Mc. VK9RH, UA2KAW, W9WNV/ZK1S, CO2JB, IT1ZGY, 9M8RS, UM8KAK, UQ2GA, 4X4QA. On 7 Mc. W5SM/MM, W9WNV/ZK1S, W0QMY/MM were logged, 3.5 produced UR2KBT and top band was restricted to VKs 3WI, 3GK, 3ACH/P and 3BX. Eric asked me to pass on to you the fact that VK7LY heard most evenings on 3.5 Mc. using both a.m. and c.w., is former VK7ZYL. Anne is one of the former VK7 s.w.l.'s and a very active one at that. Eric's monthly statistics are always interesting and are a good measuring stick for the rest of us. This year to the end of April he has sent out 519 reports, log entries have moved to 301,628, and for this year he has received 205 QSLs from 65 countries in 30 zones. DX score at the moment is 296 heard and 293 confirmed. L6021 Peter Drew has still been on the ball over there in VK6 with some good Europeans being logged on 40 metres c.w. IM4A, 5W1AX and HI8XAL were others heard on 40. On 20 metres Peter logged amongst others TG9EP, TG8FA, YN1AL, HR1SO, HI3RAP, 5W1AX, FB8YY, 4U1ITU, 6Y5AR, TI0STU, VP7NA, 4X4JR and CO8HB. Only entry of note on 15 was TI2CHV. New QSLs take Peter to 190, these were HI8WSR, plus CR3GF, SV0WF and KG6IG which I failed to mention last month. Bob L7031 set the local postmaster quite a problem by reporting in via telegraph, all went well as far as Katoomba where the tress system is in use, however, the link to Hazelbrook is by phone, and I believe the "Ham jargon" had them thinking. But the P.M.G. never fails, and all was deciphered 100%. Bob has received QSLs this month from ZK2AF, VR5AB, 7Q7PBD, EI3S, VK9XI, TG9AD, OD5BZ. Over to VK5 and Alan Raftery who reports in by tape, he has spent some time on the bands this month, and reports hearing good signals on 15, including ZS5KA and VQ8AW. On 14 he logged many interesting calls including JT1KAA, VE6BR, ZS5RE, ZS6BKV, KL7AJ, GI3JIM, OH5NW, ZE3ME, I1CAY, 7Z0GL and scores of W's Inward QSLs for the month were YV5BIG/YV7, VK9SB (now VK5BD), KG6IG and XE1FFW. Bob L3229, in between 6 metre contacts, and Rx modifications, has done little listening but has inward cards from UR2AR, MP4BCC, KC6BW and KG6IF. Ernie L5080 as usual has been busy, VP9CF, KG4AA, EP3FMA, CE8BJ, UC2BF, UL7JA plus about 50 other prefixes, all on 14 a.m./s.s.b. ZL5AA and EL2AF were also heard. Inward QSLs YV5AIP, BV1USA, UC2BF, 5W1AZ and W9WDD. L2022 only moderately busy, logged nothing more exciting than JT1KAA and FB8ZZ on 14, but general band conditions were extremely good. L3211 Warwick has been hearing some good ones on 15, including KG6, JA, TI, KS6, FK8, KZ5, VR2 and many W call areas. 20 metres is still providing most of the DX in VK3 as in other states, and VP7, ZB2, EA, SV1, F9RY/FC, FW8, VE, OX3, UR2, VP1, KJ6, ZF1, XE1 and KC4 were heard by Warwick. Inward cards for him were EA8EX, LA5CI/P, CE3UF, UG6AW, UD6KAR, UA4KED, ST2BSS, UR2AR, W2ZIA/ZK1, OZ3SK and HP1MN. That winds up the personal section of the notes. however, last Monday our letter box was broken open by some youngsters, and though I recovered some of the mail, it would seem that other letters have been lost. So if your letter has not been acknowledged in this page or by letter, then it has been lost.

DIVISIONAL NEWS. One item from the VK2 group is that under the guidance of Alan Chatto, the AR7 Handbook has been reprinted and is available from the secretary for $1, plus 10c postage. I understand also that Tony Wege L5073 is attempting to form the VK5 group, so any VK5 s.w.l.'s or other interested persons, would you please contact Tony.

GENERAL DX. Many of our listeners are interested in commercial DX and Peter Drew has drawn my attention to the Australian Radio DX Club, Box E73, St. James, Sydney. I understand that this club produces a magazine each month, and that the club would be of benefit to those interested in other than Amateur DX. From Chas. L2001 I have Radio New Zealand's new frequencies, taking effect from May 1. 9.54 Mcs. in the 31 metre band from 2000-2230 N.Z. time from ZL2. 15.11 Mcs. in the 19 metre band from 2245-0545 N.Z. time from ZL21. On 6.08 and 9.54 megs. from 0900 to 1145 N.Z. time. On Sundays transmission from 15.11 Mcs. will be from 2000-0200 G.M.T. and 0300-0545 G.M.T.

DX MANAGERS. Here is a further list of DX managers, the station call sign is shown, with the manager's call in brackets. BV1US (W4SMZ), HZ1AT/8Z (G8KS), FL8AU (W8HMI), HI8MMN (W2CTN), HL5X (W6ZY), VP7CX, VP6LJ, VS9MB, VP2AV, VP2KT, HK2YO, CP5EZ all QSL via Jack W2CTN. ET3DR (K8KLV), OD5CN (K4ISV), 9Q5AB (WA4STL), VP5RB (W4RC), W0YKD/KS4 (WA4PXP), KG6IG (W3KTY), KC6BU (W2HIN), TG6PB (WA4AYX), TT8AJ (F5EY), SV0WOO (K0GVB), LX3BD (DJ6SI) and HC1EY (W0BDM).

Don L2022.

☆

VRC

VK1 must lead off this month. Another young man, Len Whyte, has passed full A.O.C.P. at the age of 15 years 2 months—now has to wait till he turns 16 before he can operate his own Tx. Len goes to Telopea Park High, where there is no Y.R.C. because of lack of a leader, so he joined the group of juniors on Friday nights at Canberra Radio Society and then worked with Roger 1RD. Len joins George 1GB, Roger 1RD, Jim 1JR, David 1DD and Andrew 1DA in passing at 15 or 16.

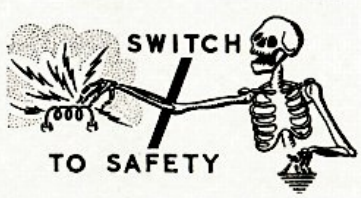
There's good news from VK3—Howard Rider 3ZJY has accepted the post of VK3 Supervisor of Y.R.S. Howard is most welcome and I feel sure he will one day look back on a solid period of development. All VK3 correspondence in future should go to Howard at 232 Cumberland Road, Pascoe Vale. More new clubs are showing up, at Oak Park High (23 members with Mr. Mackenzie as leader), and Camberwell Grammar (with instructor Peter Cole, of 5th Form, who passed A.O.C.P. recently). There is also good news that the Oakleigh Youth Club radio orphans have found a leader in Mr. Trevor Mitchell—now they need equipment and any donations will be welcome. After a donation to VK3 Y.R.S., by Fairchild, Dave Buck (one of my four readers and two correspondents!) did the very neighborly thing and sent a parcel to Rex 2YA, so Rex was able to reward holders of Junior, R.T., and W.T. Certificates.

Our far flung outpost, Christmas Island, has 52 members. It must be interesting to give radio instruction to four nationalities!

VK2 news is not plentiful this month but the number of clubs has topped 40, with new ones at Police Boys' (Bankstown) and Castle Hill High (leader is Mr. Swan), the latter putting on a good show at the school fete (including a noughts and crosses machine). VK2 Council lent a bit of weight by arranging presentation, at VK2 monthly meeting, of prizes from O.T.C. to Ernie Thatcher (first P.G. type to pass L.A.O.C.P.) and Greg Dunne (first Y.R.S. to pass Senior). All these gestures help. It also helps if you get such a letter as that received recently by Jan Oosterveen, P.G. leader up Westlakes way. Greg. Collins did some Y.R.S. work with Jan and now finds the experience a great help with progress towards A.O.C.P., and, best of all, a strong recommendation with the personnel officer of Qantas who was very interested in Y.R.S. and gave Greg. a job in electronics. Greg. is worth quoting—"I know a lot of boys who have an interest in radio but just content themselves by building a few things, as they have no goal to work for. I myself was once in that class but now that I have seen the enjoyment found in Ham Radio, there is no stopping me working for the ultimate goal —the ticket." Congratulations to both Greg. and Jan.!

The offer for someone to take over my huge correspondent's salary is still open.

73, Ken 1KM.



FEDERAL AND DIVISIONAL MONTHLY NEWS REPORTS

(SEND CORRESPONDENCE DIRECT TO DIVISIONAL REPORTER NAMED AT PARA. END)

FEDERAL

The first meeting of the new Federal Executive for 1966 was held on the 18th May and the President, Mr. Max Hull, welcomed David Wardlaw to the meeting.

Amongst the correspondence was a letter from VK2ACU Hans Ruckert, who was going to Germany in May and amongst other things was attending a convention of the D.A.R.C. Hans was given the authority to address the convention and convey the greetings of Australian Amateurs to those in Germany and we are looking forward to his report when he returns.

The Boy Scouts' Association also wrote announcing the Jamboree on the Air for 1966 and once again the Institute has assured the Association of its support for this very important occasion.

The President wishes to place on record the superlative way in which the Queensland Division conducted the Federal Convention at Easter. It was a most successful convention and all those attending have nothing but praise for the way the VK4s organised accommodation, catering and the general paraphenalia which goes with the running of a convention.

More recent activities have been the compilation of the minutes and the President and Vice-President Harold Hepburn have completed this task and, by the time this is read, copies of the minutes will be in all Federal Councillors' hands.

Early in May Harold Hepburn, Kevin Connelly and Peter Williams attended the final meeting with the P.M.G. Officers dealing with the revision of the Handbook. All outstanding matters have been resolved and it is expected that the next issue of "A.R." will contain a full summary of proposed changes, and of special interest to all will be single sideband measurement, portable and mobile operation and many other matters.

One of the most important matters as far as the Executive is concerned is the organisation of the machinery necessary to write letters and provide all Divisions with the information that they should receive. Following the Federal Convention, Federal Council authorised the purchase of two Dictating Machines and these are being put to good use and will in no small way alleviate the mechanical work which has in the past and in the immediate present taken up so much of Executive's time. Executive by doing this will therefore be able to devote more time to furthering the cause of the Institute in many different directions and, all in all, we look forward to a year of great progress.

Actions taken as a result of motions passed at the last Convention will be reported in these columns when the States have ratified the minutes.

AMATEUR ADVISORY COMMITTEES

New South Wales: B. Anderson, L. Gerity, G. G. Hall, N. MacNaughton, L. McMahon (Dr.), L. Woolnough.

Victoria: R. Anderson, F. O'Dwyer, R. Richardson, N. Storck.

Queensland: S. R. Baxter, J. L. Cantmill, R. Collins, A. Johnson, C. I. Patterson, S. D. P. Smith.

South Australia: R. E. Burns, K. S. Harris, R. T. Manuel, R. A. Murphy, D. Scott, P. M. Williams.

Western Australia: G. S. Byass, N. R. Penfold, J. E. Rumble, M. Saw, G. A. Sturcke, F. E. Taylor.

Tasmania: T. Allen, E. Beard, G. C. D'Emden, I. Nichols, C. Russell-Green, K. Spiegel.

SILENT KEY

It is with deep regret that we record the passing of:

VK3AS—A. Stow.
VK3SA—L. Simpson.

FEDERAL QSL BUREAU

CX2AJ, Enzo Sommaruga, Box 122 Montevideo, Uruguay, forwarding QSLs, states he has not yet received a single VK card and solicits my help. Do not let me down.

The city of Ria de Averio, Portugal, has sponsored an award for world Hams who contact two stations in that city after 1st January, 1966. Any band, any mode. Claims to be sent to: Comissao Municipal de Turismo, Aveiro, Portugal, accompanied by the two QSLs which with award will be returned free of charge. Aveiro stations are: CT1CM, GN, HJ, IE, JS, LG, ML, NO, NQ, NZ, OZ, PI, ZY.

The following change in the A.R.R.L. QSL Bureau list, effective immediately, is: KL7, Alaska QSL Bureau, Star Route C, Wasilla, Alaska.

For those despondent about non-receipt of QSLs, the following sighting is quoted: To VK3OF from K2EPP confirming 14 Mc. c.w. QSO on 8th Nov., 1956!

The Korean authorities have now licensed 40 portable stations with the prefix HM9. Previously they were not legit.

Cards through the Federal Bureau have average 7000 each month of 1966.

—Ray E. Jones, VK3RJ, Manager.

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NEW SOUTH WALES

The lecture for the VK2 Division's monthly meeting at Wireless Institute Centre on Friday evening, 27th May, was a most interesting one—a combination of talk, demonstration of equipment and colour slides. The large attendance showed its appreciation by close attention during the lecture and asking several questions afterwards.

John Featherstone, W5RPL, from Tucson, Arizona, was the lecturer and he chose as his subject, "New Thoughts in Radio Communication," with emphasis on h.f. telegraphy. John is a Master of Engineering, has lectured at a number of universities and is widely travelled, so it was small wonder that the audience enjoyed what he had to impart. At the present time he is carrying out further investigations into h.f. communications at the University of Sydney.

The equipment on display included generators of high-speed c.w. and gave forth some of the queer noises that we have often heard on the h.f. bands. The speeds ranged from approximately 66 to 1000 w.p.m.

The colour slides gave very clear views of equipment and installations in America, England and Australia.

Chairman Tom 2OD called on Bob Leigh KH6COZ, a visitor from Honolulu, to deal with the vote of thanks to the lecturer.

Further highlights of the meeting were two presentations to members of our Youth Radio Scheme, Ern Chalker and Greg Dunne. The latter's parents accompanied him to the meeting and were given a welcome.

Mr. Thatcher, of the Overseas Telecommunications Commission, presented a book donated by O.T.C. to Ern Chalker, who was the first member of a Y.R.S. Postal Group to gain the L.A.O.C.P. In offering his congratulations, Mr. Thatcher informed the gathering that Ern had not only made electronics a hobby but was making it his vocation by entering the employ of O.T.C.

Mr. Thatcher was also asked to present Greg Dunne with a prize of a soldering iron, which was one of those generously donated to the Y.R.S. in each Division by Mr. A. L. Roylston, of Adcola Products, Melbourne. Greg has been doing excellent work as a pupil of Kingsgrove High School, and was the first Y.R.S. member to gain the Senior Certificate.

The QSL Officer, Sid 2SG, said that during his recent absence on holidays the Bureau had been well looked after by Ted 2ACD and his daughter, who between them had handled 5800 cards for the month.

The Federal Councillor, Pierce 2APQ, said that satisfactory progress was being made with the minutes of the recent Federal Convention held in Brisbane. The Australis satellite project was proceeding well. In connection with the latter, the President reported that Divisional Council has made an immediate progress payment of $80 towards the preliminary work that must be carried out prior to the launching.

The Supervisor of the Youth Radio Scheme, Rex Black 2YA, reported that a quantity of Fairchild transistors had been received and had been distributed to senior pupils of the Y.R.S. There were now 36 clubs, the latest being the Police Boys' Club at Bankstown. Rex also gave a resume of a function held recently at Kingsgrove High School, when Greg Dunne had been the recipient of a book at a full assembly of the school.

The President informed the meeting that during the previous week someone had broken into the Division's transmitting station at Dural, and had stolen two AR7 receivers, three coil boxes and a power supply. The matter was in the hands of the Parramatta police. In the meantime, members were warned to take the necessary precautions before purchasing any AR7 receivers that may be offered for sale.

Divisional Council has appointed Stan Dogger 2ZRD to fill the vacancy caused by the resignation of Maurice Marsden 2VV. However, at the moment Council is still one down, with the resignation of Kev Collins 2ANY.

Cyril Henderson 2CH and Vince O'Donnell 2ZOD are recent welcome additions to the Dural engineers' panel.

Congratulations to Alan Smith, of the Blue Mountains Branch, who recently gained the L.A.O.C.P.

One does not usually associate Amateur Radio with rifle shooting. However, George 2AZE (Kurnell George) manages to mix these two interests quite nicely. By all accounts he gives the bull's-eye a bit of a pasting most times.

Council members were pleased recently when a few donations arrived in the mail for the I.T.U. Fund, but VK2 is still a long way short of its quota and all those who so far have not "kicked in" are urged to do so without delay. It will be too late after our bands have been whittled down again.

The VK2 W.I.C.E.N. Committee continues to meet regularly each month, and the recent election of officers for the ensuing twelve months resulted as follows:—

Chairman, Keith Finney 2KJ; Secretary, Barry White 2AAB; Treasurer, Don Miller 2GN; Committee: Bruce Meldrum 2ZOT, Dave Downie 2ZZD, Brian Hill 2ZOW, Peter Campbell 2AXJ, Paul Doman 2ZPD. Technical, Communications and Zone Co-ordinators have yet to be appointed.

Clinics for f.m. carphones on the 146 Mcs. Net were held at Wireless Institute Centre in April and May and a further session was set down for June. Some high quality test equipment was made avaliable for these clinics and the following were checked and adjusted where necessary: Transmitter—Frequency, deviation and audio distortion, power output. Receiver—Quieting figure, netting to transmitter frequency. Antenna—S.w.r. checked.

A booklet outlining message handling procedure has been printed. This is a direct copy of that used by the VK3 Division, which has been fully tested under exacting conditions. Copies may be obtained from the W.I.C.E.N. Secretary, Barry White 2AAB or Wireless Institute Centre, Crows Nest. 73, Ivan VK2AIM.

HUNTER BRANCH

Those members intending to go mobile were well catered for at the June meeting of the Branch held on 3rd at the Technical College. The first lecturer was Len 2ZFD, who gave a host of useful information about suppressing interference in the car. He introduced many members to a new technique of using ferrite beads on the plug leads right at the spark plug. Those who have used this method have reported that it is superior to the former method of fitting a 15K resistor in the ignition lead. Len also showed the co-axial capacitor for dynamo suppression but frightened many off when he mentioned the price.

Then followed the "Converters" lecture, delivered by Ian 2ZIF. Ian discussed the problems of designing a converter to suit the local conditions of the user and went into detail to speak about valve and transistors front ends and mixers. Following an extensive treatment of operating parameters and design considerations, Ian discussed his own design of a converter using a pair of nuvistor valves in grounded grid. This and all the other points made were summarised on a two-page photostat handed to each member of the audience. Thirty members and visitors were

present and Bill 2ZWM in his vote of thanks to the lecturers expressed the appreciation of the members when he referred to the lectures as being a most worthwhile contribution. The W.I.C.E.N. handbook of operating procedure was available and Gordon 2ZSG arranged distribution of these. The attention of members was drawn to the fact that a suspected pirate is operating in the area. It was suggested that this person be shown the error of his ways in some suitable fashion before he lands himself and others into trouble. One unhappy fact about pirates is that interference caused to other services by them is frequently blamed on licensed members. Almost invariably they are referred to in press reports as "Radio Amateurs" thus bringing discredit on legitimate Amateurs operating within the terms of their licence.

Some members have already received the new licence renewal card being issued by the Post Office. This takes the same form as the computer based listener's or viewer's licence. One rather strange thing is, however, that no call sign is stated on the card. Although a note in bold type on the reverse side indicates that payment may only be made to the Chief Cashier. I paid mine at the local Post Office without any argument.

The attention of members is drawn to the local broadcast of news which is made from VK2AWX every Monday night at 1900 Eastern Time. This broadcast is made for members and it cannot continue without your support. Every effort should me made to call back after the broadcast and comment on the subject matter or presentation. Broadcasts are made from the Westlakes Radio Club building at Teralba and members are cordially invited to be present during the broadcast. Those who so desire may wish to volunteer to read or prepare the script and this would be greatly appreciated by those at present maintaining this service.

After hearing reports that his signal was only S9 instead of off the scale, Jim 2AHT decided to do something about it. Of course, this was his 40 metre signal, so, equipped with a rotatable beam for this band he went to work and extended the already tall mast to a full 90 feet and supported the new 7 meg. radiator atop it. This now gives Jim the distinction of being one of the strongest VK signals on 40, a fact which is already evident on his other h.f. band operation. Jim now has separate beams for bands 40 to 10 and, seeing him closely inspecting some railway waggons the other day, I'm expecting 80 to be the next band of consideration. His new mast is certainly a landmark in Toronto.

During his recent visit to Newcastle, Don 2BAE did an amount of constructional work and was able to get a transmitter fully operational on 80 in 7 minutes and 35 seconds so I am told. Of course, the efficiency which accompanied this constructional feat was not as high as could have been expected. Too many cockroaches, no doubt.

While cosmonauts paddle around among the stars, those on earth have to be content with experiments with a Galaxy—or so Les 2RJ tells me. To make the operation just that much more intereseting, he has bought a new chariot to go with it and probably by now is operational on the DX bands. Whether this is an attempt to catch the star of local mobile operators or not I cannot say but for any who may wish to do so, here is the handicap. You are just 92 countries behind scratch—that's Bill's 2XT's mobile score at the present. By the way—good news for lady drivers. Sylvia, XYL of 2RJ, is allowed to drive the new car—outside the town. Those on 146 f.m. are having their day, too. A contact was made from Teralba to Kulnura on this frequency one Sunday night recently. Bill 2ZWM and Arthur 2ZMU are both on the way to having the S.T.C. units available soon for 146. Ron 2ASJ is planning a new aerial system to really get operational on the DX bands as well as 40 and 80. An inverted V appears to be his choice, so watch out soon for big signals.

Dont' forget the next meeting of the Branch to be held on Friday, 5th August, when another lecture of interest has been arranged. Full details of this meeting and all Hunter Branch activities may be heard on the weekly broadcast—3595 Mondays—or may be read in the weekly column "News of Radio Amateurs," published every Saturday in the Newcastle "Morning Herald." Oh, and you won't forget the Field Day, it's less than 3 months away! See you, 73, 2AKX.

CENTRAL COAST BRANCH

The last meeing of the Central Coast Branch was held on Friday, May 20. It was a cold, very wet evening, but we had an attendance of 17 to hear Keith VK2AKX talk about his experiences at the Federal Convention in Brisbane and Tony Mullen VK2ZCT discuss his transistor converter. It was a most interesting and instructive evening and everyone appreciated the efforts of Keith and Tony to devote their time to us.

We have a new call sign in our district—Peter Kerr VK2ZPK. 73, Mona VK2AXS.

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VICTORIA

VICTORIAN COUNCIL MEETING

The meeting held on 23rd May was the first meeting of the new Council. The new members are John Beckett VK3ZCB, John Wilson VK3ZOQ, and Bill Faul VK3AGZ, who volunteered his services as Treasurer and is therefore an ex-officio member of Council.

The first task undertaken was the allotting of the many tasks involved in running the Division, and they came out as under:—

President: Ken Pincott, VK3AFJ.
Vice-Presidents: Michael Owen, VK3ZEO; Tom Cuthbertson, VK3ZIQ.
Secretary: Ken Seddon, VK3ACS.
Treasurer: Bill Faul, VK3AGZ.
Federal Councillor: Michael Owen, VK3ZEO.
Librarian: Bill Roper, VK3ARZ.
Instrument Library: Cyril Maude, VK3ZCK.
Inwards QSL Manager: Eric Trebilcock, L-3042.
Outwards QSL Manager: Ivor Stafford VK3XB.
Disposals Secretary: John Battrick, VK3OR.
Disposals Assistant Secretary: Jack Kelleher, VK3AIJ.
Disposals Committee: John Spicer, VK3ZEL; Tom Cuthbertson, VK3ZIQ; Jim Stewart, VK3ZFS; Len Poynter, VK3ZGP.
Broadcast Committee Chairman: John Wilson, VK3ZOQ.
Class Instructor (Theory): Cliff Pickering, VK3ATP.
Class Instructor (Code): Jay Lancaster, VK3JL.
Correspondence Course: Ken Seddon, VK3ACS.
Transmitting Officer: Peter Linden, VK3BX.
W.I.C.E.N. Co-ordinators: John Battrick, VK3OR: Michael Owen, VK3ZEO.
Technical Co-ordinator: John Spicer, VK3ZEL.
State Controller: Harold Hepburn, VK3AFQ.
T.V.I. Committee: Jack Taylor, VK3ZJF; Bill Rice, VK3ABP; Mr. Farthing, VK-3AFR.
Publicity Officer: John Wilson, VK3ZOQ.
Y.R.S. Liaison Officer: John Battrick, VK3OR.
Editor "Amateur Radio": Ken Pincott, VK3AFJ.
Assistant Editor: Kel Cocking, VK3ZFQ.

It was resolved that in order to ensure a continuity of the work of the Division, all office-bearers should have an assistant. Any member willing to assist with any of the work is asked to contact the Secretary.

The I.T.U. Fund was discussed and in view of the discussion at the May General Meeting it was agreed to publish the list of donations so far received. The list is up to 15/5/66.

£10: VK3s WB, AFW, APC.

£5/5/-: VK3s NI, QV, UM, AVY.

£5: VK3s DU, HC, IC, OH, VZ, ADN, AIM, AKX, ASY, AWF, ZIY, ZME, ZPL.

£3/6/5: Anon.
£3/3/-: VK3NM, L3102.
£3: VK3s BB, XO.
£2/10/-: VK3s BM, ABA, ZDP.

£2/2/-: VK3s AS, DG, EJ, HW, NB, AHA, AHZ, ZLR.
£2/1/-: VK3ACS.

£2: VK3s AL, BQ, BS, BT, FH, HJ, HL, HW, IT, KF, MU, NS, OL, PL, UF, VB, VQ, XY, YE, ZE, ABE, ADR, ADS, ADV, AJW, ALM, ANV, AOD, AOG, APM, ARJ, AST, AVX, AWT, AXK, AZA, ZAN, ZBY, ZCF, ZCO, ZER, XFM, ZGL, ZHO, ZHR, ZIP, ZJF, ZKK, VK9AM.
£1/10/6: VK3KX.
£1/10/-: VK3s AN, DY, EB, GB, QX, SO, WM, ADK, APH, APR, AVV, AWG, ZAM, ZXI.
£1/1/-: VK3s AI, LG, YT, AAC, ACD, AEQ, AKO, ZBU, ZGC.

£1: VK3s AC, AX, AZ, BJ, BL, BP, BX, CB, CI, CJ, CO, CT, CZ, DM, DQ, DT, EC, EF, EH, EL, EM, EN, EW, FF, FG, GC, HE, HR, HZ, JA, JT, KB, KO, KS, KU, KZ, LC, LF, LI, LW, MI, NN, NY, PC, PH, PJ, PW, PZ, QL, QP, QR, RA, RM, RN, RS, RU, SC, SE, SK, SM, SY, TB, TF, TH, UG, UJ, VI, WC, WK, WY, XB, XK, XM, XP, ZX, YK, YL, YQ, YS, YU, ZB, ZC, ZF, ZG, ZN, ZQ, ZU, ZY, AAB, AAN, AAT, ABB, ABK, ABN, ABP, ACJ, ADU, ADY, AEC, AEO, AET, AFJ, AFP, AGB, AGC, AGD, AGH, AGS, AGY, AHL, AHR, AHU, AIJ, AIL, AJP, ALG, ALL, ALN, AMI, AMP, AMV, AND, ANH, ANQ, AOY, APA, APF, APG, AQD, AQI, AQW, ARM, ARP, ARY, ASC, ASX, ATB, ATL, ATP, ATR, AUC, AUM, AUX, AVA, AVP, AVV, AWB, AWJ, AWM, AWO, AWS, AWV, AWZ, ZBI, ZCA, ZCU, ZCX, ZCY, ZEL, ZFA, ZFC, ZFF, ZGD, ZGS, ZHM, ZHN, ZHP, ZIG, ZIX, ZJA, ZJU, ZKG, ZKM, ZLP, ZLQ, ZMP, ZNB, ZOO, ZOQ, ZRH, L-3042, L-3157.
D. Andrews, J. A. Gilmour, R. J. Collender, C. Constable, M. Trainor.

These donations total just under £500 against out state quota of £800. Donations received after the 15th May will be listed and published as they become available.

It was resolved to start a membership drive. Some of the preliminary work has already been done and John Beckett undertook to assist with this project.

The 1967 State Convention was discussed and a proposition agreed to in principle. Steps will now be taken to check if it is possible to make suitable arrangements, and it is hoped to announce the venue and form of the Convention within a matter of a week or so.

EASTERN ZONE

The duck season is certainly with us, as Reg 3AWV has bagged himself a duck talking machine in the guise of a Galaxy 5. David 3DY must have persuaded him that this was the breed to purchase. Vic 3AVP is tempor-

arily at 3GI broadcasting station, installing automatic and remote control gear, so that the station can become the first of the larger national stations to operate mostly unattended.

Vic 3AVP, Cliff 3AIT and Rodney 3UG are all going for various P.M.G. technical evams, so if you don't hear them until after the end of July you'll know why. After the exams all three should have more time for new projects. Rodney 3UG has been doing some operating on 160 of late and has been getting quite good reports from N.S.W., but mains noise is making copy difficult this end. Cliff 3AIT will shortly be on 163.12 Mcs. on the C.F.A. communications network. Cliff 3AJA is considering coming on 80, only trouble is t.v.i. in reverse.

I'm sorry to report that the St. Anne's Radio Club has this year not functioned at all. This is, I feel, due to the fact that Dan Warricke, last year's science master, has left and the present science master isn't radio minded. It is a pity as an approach by Rodney 3UG did not bring results.

George 3ZGG has evidently got a good v.h.f. location as he now is heard by the boys in Melbourne on their way to work on the 2 f.m. net. George must be about our keenest v.h.f. fan, and he certainly keeps the Eastern Zone on the v.h.f. map. Alex 3ZII has moved QTH in Sale, and is now trying a new mobile whip on 6 with drooping radials. Philip 3ZTF is still having trouble getting on 6, although whilst on holidays in VK4 had a few contacts on 53.032 Mcs. with a borrowed Pye Mk. 1. As a matter of curiosity I have my 6 metre net transceiver in the kitchen. Is it unusual for an Amateur to have some of the shack equipment in the kitchen I wonder? My XYL didn't voice undue concern, so in it went.

That's all, chaps, may hear you on the Zone hook-up on 80 one of these nights. 73, 3UG.

WESTERN ZONE

Activity in the Western Zone seems to be very limited at present. We have heard Gavin 3AEJ and Bob 3ARM with bigger and better signals on 80. Ray 3ATN is heard regularly on various bands discussing and organising his moonbounce and satellite interests.

The zone hook-ups see the usual regulars on Wednesday evenings—a sign of the times is that the mode is sometimes 50-50 sideband and a.m.

Associate Roy Goodwin has just completed the Civil Defence School Signals Instructors' Course. When are you going to get a ticket, Roy?

On 145 f.m. 3AFU/3KT have regular contacts with Roy 3AOS but have had no DX except for the morning of 29th May when five Melbourne stations were heard calling back to 3WI after the broadcast. Later 3KT heard and was heard by 3AOK but traffic on the channel prevented an effective QSO. Perhaps our disappointing season on f.m. will be compensated for by working 5PS on s.s.b.? 73, 3KT/3AFU.

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QUEENSLAND

The June meeting of the Queensland Division of the Wireless Institute of Australia was held in the Social Services Rooms in Berwick Street, Valley. Despite a very cold night there was a full attendance of Councillors.

The VK4 V.h.f. Group is now well under way, and the following officers have been elected: President, Mick VK4ZAA; Treasurer, Roy VK4ZRH, and Secretary, Tom VK4ZAL. Tom is also a member of Council, so the v.h.f. boys and the VK4 will have close co-operation.

The Sunshine State Contest, which is an intra-state contest, is set down for the week-end of July 9-10. There will be a V.H.F. Section, a H.F. Section and a Combined V.H.F./H.F. Section. Three first prizes with handsome Pennant for each section. The V.H.F. Section will run over 24 hours and scoring will be on a mileage basis. The H.F. Section will be run on a zone basis, using the W.I.C.E.N. official zone map for scoring. The V.H.F. Section will embrace 52 Mcs., 144 Mcs. and 432 Mcs. as there is activity on all these bands in VK4. The H.F. Section will embrace 80, 40 and 20 metre bands.

An innovation this year which will certainly stir up activity is that the Contest starts all over every hour, on the hour. This means that any contestant can contact every other contestant on all bands each hour, and then start all over again and work them on all bands the next hour. However, if a contact is made with one station in one hour a contact cannot be made with the same station until an intervening contact is made. Thus you cannot contact a fellow at 0059 and then again at 0100 unless you contact someone else in between.

The V.H.F. Section will run from midnight Saturday to midnight on Sunday. The H.F. Section will run from 3 p.m. on Saturday to 6 p.m. on Saturday, and from 9 a.m. to noon and 2 p.m. to 5 p.m. on Sunday. So looks like a lot of Q.R.M. on the bands.

The VK4 boys have a very active 10 metre net up here every Wednesday night at 8.30 p.m. on 26.6 metres. VK4s up to 70 miles or so are regularly calling in on this net. We also break and look south for VK2s, VK3s and VK5s and then West a bit for VK6s. We would welcome breakers from other states, but the boys are real rag-chewers, so if you cannot break with phone, make and break your carrier somehow, as at least one of the fellows can read c.w. and will acknowledge, but the boys are real rag-chewers, so if you get a chance to say anything, as we usually have up to three fellows all talking at the same time. But here's hoping.

The station manager of VK4WI has asked me to advise that our weekly Sunday morning news broadcast takes place at 9 a.m. on 7.146 Kc., followed by the VK4WI town and country hook-up at 9.30 a.m. on 7.105. These are official frequincies, but over the last week or so we have had QRM from other stations in QSO on or near this frequency. It would be appreciated if this frequency can be kept clear at this time. A couple of Kcs. can make a lot of difference to copy up here. All stations VK4 and interstate are welcome to join in and Alf, our station manager, will give you a good hearing. 73, Reg. 4VX.

TOWNSVILLE AND DISTRICT

The June meeting of the local radio club was poorly attended. Unless the local boys come along, methinks that will again fold up. This will be a pity, it has just been reorganised with great expectations of outdoing the previous club. Those that did come along witnessed a few films dealing with radio. The one on standing waves was really appreciated.

Looking through the Queensland Q,T.C. for the past three months, it was really sad to see that the majority of the local Amateurs in Sunny North Queensland have not renewed their subs. to the W.I.A., more is the pity, as this will decrease the overall financial aspect of the Queensland quota of the I.T.U. Fund, more so as one can frequently hear the non-members moaning about the commercials, etc., that infest our Amateur bands. One begins to wonder if they were so active in helping as they make out.

As this is the tourist season it is to be hoped that all Amateurs passing through will call in on some of the locals and be taken around and have an eye-ball QSO with the others. Most of the locals will be only too happy to get their car out and do the necessary driving by taking the shortest route to the different shacks. Alf 4OL just called and made his views known of the good time he had meeting the boys further north. Even met Harry 4OH up in Mosman, while Basil 4ZW did the honours for the Cairns District, so much so that Alf will return at the end of the year.

73, 4RW.

— . . . —

SOUTH AUSTRALIA

The monthly general meeting of the VK5 Division was held as usual to an above-average attendance of members and visitors in the clubrooms on the fourth Tuesday night of May. The Chairman and President, Ross 5KF opened the meeting by calling for apologies from any members not present, and after several names had been acknowledged, the name of Warwick 5PS was accepted as an absentee, to the accompaniment of prolonged hand-clapping and delighted cheers from most parts of the hall. No Federal business was discussed, for the obvious reason that no Federal business had arrived, and aside from a discussion on the I.T.U. Fund, and a reference to the recent outbreak of burglaries to one or two of the members' shacks, with an accompanying warning as to keeping doors locked and not making it easy for the burglars, very little Divisional business was discussed.

Distribution of QSL cards followed, and after a short smoke-oh, the technical side of the night began. This took the form of several lecturettes on the much-discussed Delta-Het principle of reception, and was kicked off by Phil 5NN with a short discussion on the theory, together with oodles and oodles of circuits pinned to the blackboard, and ending with a detailed description of the components suitable for the project. Bowing out to sustained applause for his efforts, his place was taken by Gary 5ZK, who then took over with the construction side, and the silence which greeted his efforts was a clear indication of the job he did, and also of the definite interest of all members present. 5ZGW, no christian name to hand, then demonstrated a receiver which he had constructed, Peter 5ZKA and Neil 5WN also demonstrated their partly-built receivers to a keenly interested audience. Question time then followed, and all members of the panel were kept busy answering a bombardment of enquiries from all present, a sure indication of the success of the lecturettes. The Chairman sincerely thanked all members of the panel for their part in the successful evening's entertainment, and closed the meeting at 10.25 p.m., although at 11 p.m. the meeting was still being carried on unofficially at the demonstration table, and was finally broken up by the appearance of the caretaker and his Alsatian elephant, well, anyway, he looks as big as an elephant to me, although I must admit that the last ones around the demonstration table only departed at the third grinding of the teeth of the aforementioned hound dawg.

General reaction to this lecturette was more than enthusiastic, and there was no doubt of the fresh interest aroused among the members of the audience to the Delta-Het principle. Incidentally, Phil 5NN stated that two enquiries had been received for information on the Delta-Het from outside of VK. Personally myself, what with "The Thing," and now "The Monster," I am beginning to form the opinion that my crystal detector and headphone set-up is gradually being superseded, more's the pity! I suppose before long they will be suggesting I get rid of Dobbin and the buggy for one of those new-fangled automobobbles.

Did you notice the photo of Joe 5JT in the "Advertiser" recently? plus the caption that he is 80 and still interested atfer 40 years as a Radio Amateur. Obtaining his licence firstly in Alice Springs during 1927, he acted as contact man for all the major expeditions venturing into the centre of Australia at that time. He hit the headlines even back as far as 1932 when a prospector became ill at Tennant Creek, and Joe is credited with saving his life by using a small radio set he had made himself, and contacting an Amateur in Adelaide who obtained instructions from a doctor and passed them back by radio to Joe. During World War II Joe was in charge of the radio station at Parafield, handling daily messages to Laverton and Point Cook, to say nothing of his many years of duty to the VK5 Division as its communications manager. Nice work, Joe—but keep down from that tower—remember the gypsy's warning!

Talking of pictures in the paper, did you also notice on the social whirl pages the photo of the State President of the S.A. Air Force Association and his charming and petite wife who were guests at the dinner in honour to Group-Captain Leonard Cheshire, V.C. Sitting on my upturned bucket in my tent at night and reading of the gay doings of the upper set, I glow all over at the thought that I once knew them when—Who was the President?—Sorry—Ray 5RK—and did he look the picture of sartorial elegance!

Another VK5 to hit the headlines in the local paper, somewhat unwillingly I fear, was George 5CV, who according to the paper had thieves break into his radio shack and steal a valuable American receiver. The paper did not make any mention of George's flow of oratory upon discovering the burgled shack, but rumour has it that he never used the same word for at least 20 minutes. My sympathy, George.

Understand that Mick 5ZDR was also a victim of unauthorised entry, although no details of just what was missing are to hand. Hope all is well, Mick.

At the moment of writing, Murray 5ZQ is on annual leave, both from his vocation and also from the 5WI broadcasts. The fort has been held in solid style by Uncle Tom 5TL, who apparently has quite enjoyed himself in the process, although a little rumour has reached me that he is not altogether carried away with excitement when stations using "The Thing" come back to him on the call-back: Try him on c.w., Dud 2DQ, he never misses on that.

The Mount Gambier boys have had to put their proposed convention over the June holiday week-end into cold storage for the moment. Seems that a baseball team has been around and booked up all available accommodation for that period, which definitely threw a spanner in the works for the convention. Bad luck, fellows.

The Canberra Radio Society dropped the VK5 Division a line concerning the matter of an excess number of QSL cards arriving in VK1 which remain unclaimed, simply because there are no such stations licensed. The moral behind the whole thing is, make sure the station worked and QSL'ed was in fact really a VK1 and not a phony. I have always had my doubts about that Ken IKM—remind me to check him some time!

Geoff 5TY seen hurrying hither and thither recently, accompanied by three members of the Australis Project. Apparently they were over for a visit to WRE in quest of information on satellites, etc., and Geoff was the contact man where possible. I was about to track them down for an interview when I was tipped off that they were probably VK3s, which was enough to make me take to the hills, and how!

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1C7	50c	5Y4	75c	6G8G	$2.60	12A6	50c	956	50c
1D4	75c	5Z3	$1.75	6H6 Metal	50c	12AH7	50c	958A	50c
1D8	75c	6A3	75c	6J5GT	$1.00	12AT7	75c	1616	$1.50
1F5	$1.00	6A6	75c	6J6	$1.00	12AU7	$1.50	1625	50c
1H5	75c	6AB7	$1.00	6K6	$1.00	12AU7A	$1.50	1626	50c
1K5	50c	6AC7	75c	6K7	50c	12AV6	75c	1629	50c
1K7	50c	6AG5	50c	6K8GT	$1.25	12BE6	75c	5636	75c
1L4	50c	6AG7	$1.25	6K8 Metal	$2.00	12C8	50c	5763	$2.80
1L5	$1.00	6AJ5	75c	6L7	50c	12J5	50c	6021	$1.00
1LN5	50c	6AK5	$1.50	6N7	50c	12SA7GT	$1.00	9004	50c
1M4	50c	6AL5	$1.40	6R7	75c	12SC7	50c	EA50	40c
1M5	50c	6AM5	$1.50	6S5	75c	12SG7	75c	ECC35	$2.00
1P5	50c	6AM6	$1.00	6SA7	75c	12SK7	50c	ECH33	$2.00
1Q5	50c	6AN7A	$1.65	6SC7	75c	12SN7	75c	ECH35	75c
1R5	$1.90	6AR7GT	$2.10	6SF5	75c	12SQ7	50c	EF39	50c
1S2	$1.75	6AS7GT	$2.00	6SF7	75c	12SR7	50c	EF86	$1.85
1S5	$1.60	6AU6	$1.45	6SH7	50c	16A5	$1.70	EY91	50c
1T4	$1.00	6AU8A	$2.40	6SJ7	$1.25	16A8	$2.10	KT66	$3.00
1U4	$1.60	6AV6	$1.40	6SK7GT	$2.00	25L6	$1.00	QQE03/12	$4.75
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2X2	50c	6BQ5	$1.70	6U7	75c	57	50c	VR102	50c
3A4	$2.20	6BR5	$1.45	6U8	$1.70	58	50c	VR135	50c
3A5	$1.00	6BX6	$1.45	6V4	$1.14	80	$1.70	VR136	50c
3Q5	$1.00	6BY7	$1.45	6V6GT	$1.75	717A	75c	VR137	50c
3S4	$1.00	6BZ6	$1.80	6X4	$1.00	807	$3.75	VR150	$1.25
3V4	$1.50	6C6	50c	6X5	$1.45	808	$1.00	VT78 (6D8)	50c
5AR4	$2.60	6C8	$1.00	7A8	40c	809	$2.00	VT127	50c
5AS4	$1.45	6CG7	$1.55	7C5	50c	830B	$1.50	VT501	75c
5R4GY	$3.75	6CH6	$2.35	7C7	50c	832A	$6.00	VU39A	50c
5T4	$1.75	6CM5	$2.25	7E6	50c	837	$2.00		

NEW VALVE SOCKETS

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4/250A	,,	20/- ,,
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EF50	,,	2/6 ,,
VCR97	,,	10/- ,,
805	,,	12/6 ,,
EA50	,,	2/6 ,,
5-pin	,,	2/6 ,,
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Special completely shielded 7-pin P.T.F.E. socket and shield .... 10/- pair

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AC2	Aerial Coil	$1.00	VIF4	,, ,,	90
AC3	,, ,,	$1.00	VIF5	,, ,,	90
AC4P	,, ,,	$1.00	VIF6	,, ,,	90
AC4S	,, ,,	$1.00	VIF8	,, ,,	$1.30
AC7	,, ,,	$1.30	VIF11	,, ,,	$1.00
AC9	,, ,,	$1.30	VIF12	,, ,,	$1.00
			VIF14	,, ,,	$1.00
IF14	I.F. Trans.	$1.30	VIF15	,, ,,	$1.00
IF15	,, ,,	$1.30	VIF25	,, ,,	60
IF29	,, ,,	$1.65	VIF28	,, ,,	60
IF34	,, ,,	$1.30	VHO1	,, ,,	60
IF36	,, ,,	$1.65	VW1	,, ,,	60
IF44	,, ,,	90	RC6	Reinartz Coil	$1.00
IF45	,, ,,	90	RC5	,, ,,	$1.00

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72 ohm Co-ax Cable, 27 yd. lengths, 3/16 inch diameter 20/-

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122 Aerial Packs .... 60/- each

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The call-sign books went off like hot cakes, and Uncle Tom 5TL, our publications officer, has been turning the Adelaide bookshops inside out in an endeavour to find an odd one or so to oblige a host of clamouring would-be buyers. The old story again—the early worm gets the bird—or something like that.

Another welcome visitor to VK5—his original stamping ground—was Ross, WB6DEX—3AJL—5AJ), who was over from W land for a short period, lecture bound as usual—and my source of information informed me that he stayed with Pete 5FM for a couple of days, and also that there might be a remote chance of his snatching time to pay a quick visit to the meeting night. However, this did not eventuate, more's the pity, but perhaps there will be another time to renew acquaintances—or as he so aptly put it in a letter to me some time ago—even renew old animosities!!

It goes without saying that upon my return from my eight weeks' holidays, that the mailbag was overflowing, including a letter from "Greg," who it will be remembered wrote that excellent article earlier in the year in the magazine on the crystal converter using the "Like New Mixer," etc., etc. He tells me that he wrote the article in somewhat of a hurry just prior to disappearing to Macquarie Island for the "summer." My suggestion in an earlier paragraph that his obvious qualifications—a B.Sc.—should make it a piece of cake for a call sign, drew the observation that as it was taken in zoology—birds and bees, etc.—its qualifications for radio was debatable. However, he qualified it somewhat by saying that during his stay at Macquarie his experience as Col's 0MI offsider helped to firm his resolve to give the call sign a go, even though he is still in the very, very, very slow c.w. section. Nice to hear from you Greg, and don't weaken on that ticket. By the way, he is QSL manager for VK0MI these days.

Worked all my usual stations during my fixed portable set-up again this year, even running the risk of missing the dinner gong in an endeavour to contact Carl 5SS and Frank 5MZ. We just concluded the QSO as the gong went, which meant that I was only a spoon or so of soup behind the rest at the start of the meal, ending up a clear winner by a return of apple pie plus a couple of pieces of jam and cream.

Called and called Tom 5TL—Uncle Tom to you—but he was evidently so busy saving little Eva from Simon Legree, or some such other activity, that he treated me with ignore. He was heard bemoaning the fact of having missed me, as he has never worked me from the Oakbank Racecourse, and was apparently quite keen to join the elite band who have succeeded in doing so. You should hear them carrying on as soon as I hit the air, it's hard to sort out the abuse from the praise!

Worked Comps 5EF early in the piece, with what he sneeringly described as a mixture of a.m.—"The Thing"—and raw a.c. Quite alarmed, I backed out and after wielding a hammer and a tyre brace to good effect, plus changing the microphone, I returned rather guiltily to the air and was rewarded by contacting Comps again, to be given a clean bill of health, somewhat reluctantly, I felt.

Ron 5KS had a trip to Port Pirie over the school holidays, and if my spy at that locality is on the job, called on as many of the local gang as possible in the time available. Sounds like a good public relations effort on the part of our latest Council member.

Bob 5BG also on holidays and was hoping to make the general meeting for the lecturettes on the Delta-Het receivers.

If any of my readers are in the grip of the one-eyed monster, and at the same time watch "Coles Question," they might be interested to know that the Judith Williams who is upholding the honour of VK5 in the junior section of the show, is none other than the daughter of that doyen of the s.s.b. followers, Phil 5NN, probably better known as the sub-editor of the s.s.b. column in the magazine—which I never read incidentally—someone told me about it! Anyone who knows Phil personally will not fail to recognise the likeness between daughter and father, in fact the reaction of my XYL as soon as she saw Judith was to say, "You can tell she is the daughter of that man from Blackwood." Upon my saying that I would not hold that against her, she smartly said, "How can you say such a thing"—"I think he is a nice, clean-cut type of young man," and then treated me with ignore for the rest of the viewing. How shrewd can they be—call to the house on the pretext of lending me some R.S.G.B. magazines, and then lay on the charm with a trowel. Nice, clean-cut—the next thing she will be wanting to listen to some station using "The Thing."

Received a letter from Harold 2AWH just prior to taking my annual leave, in which was enclosed a letter from G3RND who was writing for information regarding Amateur doings in VK because he intends to come to live in our part of the world, no state mentioned, at the end of this year. Harold had replied to him giving him some general answers to his questions, and hoped that I might be able to give the letter to one of his countrymen around Elizabeth way, who might oblige with further information. All is well Harold, the letter has been re-directed, and thanks for the pat on the back.

Also received a communication from Don 4DZ, who had found some use for the photostats of the Type 2, Mark 2 that I lent to Cliff 4QJ and was returning them intact to me. He included a paragraph in the letter to tell me that contrary to whatever else I had heard, Pincott 3AFJ—never heard of him—and our Federal Councillor, Geoff 5TY had behaved themselves perfectly at the Convention, and concluded by saying that at least if VK5 cannot grow bananas, they certainly produce a good mustache! He also sent his regards to the caretaker's Alsatian may his teeth never grow blunt! A remark that I took as wishful thinking.

Upon my return from my holidays I was pleased to note that Muriel 2AIA was well on the road to good health again, and also to read that Hebe 2AOK now has the distinction of being a member of the VK2 Council. Nice work my dears—Oh, I am a one—not a word to Bessy!

A spy of mine, planted on Macquarie Island, dressed in his white tie and tails to permit him to escape detection by mingling with the penguins, informs me that Len 5ZF recently contacted Col 0MI on 80 mx and secured a more than average report on his signals. Although Len probably does not know it, he had quite a long conservation with the above-mentioned penguin, and when you consider that he was only using 15 watts input from VK, he should feel well satisfied. By the way Len, the penguin has posted away the QSL card for the contact via the bureau, would like to see it sometime, just to know what a penguin writes like!

Jack 5LR back from one of his numerous vacations and finding business with the goggle-boxes very brisk. Finds very little time for Amateur Radio these days, although he informed me with his well-known twinkle in the eye, that he has never regretted making up his version of "The Thing." See if I care!

I never believe in hitting below the belt, not more than once anyway, but in self-defence I must draw attention of all those kind-hearted friends (?) of mine, who at the slightest provocation burst into songs of praise concerning the efficiency and what-have-you of using "The Thing," to a recent letter printed in my favourite technical publication from VK2, with the heading—"S.s.b. in the Desert."

Modesty and a natural desire on my part not to engage in an argument on such a dangerous subject, prevents me from saying, "I told you so," but perhaps that "Nice, clean-cut type of young man" from Blackwood would like to comment in his monthly column in the magazine? What's that? He might not have seen it—are you kidding? If he has not, I will quick and lively shove it under his nose!!

One of the younger members of the VK5 Division recently told me that at times he would like to rise to his feet at the general meetings and have his say on certain matters, but felt a little shy and somewhat awed by the presence of older members. I told him that I always felt that way myself, which was one of the reasons that I never stood on my feet at a meeting, nor did I attempt to argue on any matters. Ignoring the look of amazement on his face, I gathered that he could not believe hs ears, I quietly, in my well modulated and tinkling voice, recited a little something which I learnt from bitter experience well back in the old "spark days." Would you like to hear it? You would not—Thank you for your insistence, and here goes:

I hate to be a knocker,
I always long for peace,
But the wheel that does the squeaking
Is the one that gets the grease.

73, de VK5PS—PanSy to you.

— . . . —

WESTERN AUSTRALIA

The May meeting of the VK6 Division was again well attended. Not the least interesting patr of the evening was finding one's way into, and out of, the meeting place. Once again the Technical College holidays coincided with the meeting night and the area was locked. To add somewhat to the confusion, a slight earth tremor was experienced. Windows and doors were severely rattled, however, a close inspection of the foundations showed that no serious damage was done. The cause was later explained by experts, as being the direct result of the presence of Ian 6CL and O.M. Glad 6FG. Definitely a blasphemous statement, Ian, and it was certainly nice to see you at the meeting. More so for me personally, being the first eyeball for something like 20 years. Shades of the old R.A.A.F.!

However, some 48 members completed the obstacle course of car park and hole in the fence and gained the bright lights of the Chemistry Lecture Theatre. Once again the area was made brighter by the presence of two YLs and a number of visitors. The name-tags are gaining prominence again and seem to be selling like hot cakes after their re-introduction by Graham 6ZEZ (more commonly known as Henry).

Our hearty congratulations go to Graeme 6GR and his XYL, on the recent arrival of a new harmonic.

My big ears twitched convulsively when I detected (or is it demodulated?) the low whisper that George 6GH was talking sideband and, furthermore, was consulting with Jim 6RU on what type of beam to install. Could it be true? It certainly is because I distinctly heard him on 20. Not only that but imagine my pleasure when Alan 6MO was also heard making his presence felt, also on a new sideband rig. Boy, if only you still had the antenna farm at Watheroo, Alan, the DX would sure take a beating.

Lost, stolen or strayed, one 6FP Mick Paget. Where are you O.M.? Long time no see, have you been tripping around the North-West again?

Heard recently on 80, the lonely voice of an ex-VK3 seeking kindred souls from his home state. John Pritchard 6IP ex-VK3UI—nice signal, too. If any traitorous member of the VK3 divvy should happen to let his wayward eyes stray to these VK6 notes, what about giving John a shout?

Mobile activity again under notice. Cedric 6CD from Carnarvon and Geraldton areas with transistorised rig giving a very creditable performance. Pat 6PH, tripping back and forth, doing a "Good Samaritan" between Narrogin and Perth, to bring some gear to a sick member of the v.h.f. gang. It is also rumoured that "Kondinin Bob" VK6KN is operating mobile in "them thar hills." Jack 6RT running 2 watts to a piece of wet string, sorry, 60 feet of wire, from Mount Magnet and points north. V.h.f. boys, among them Peter 6ZEP and John 6ZBY, were also operating portable from various hilly locations in our glorious sunny state.

While on v.h.f. topics, our congratulations to Don 6HK, Harry 6HP and Graham 6ZDB for their extremely successful efforts relating to the weather satellite. Incidentally, they received quite a good wrap up from the local press and T.V. news service. This type of publicity is good for the Amateur service.

That old stalwart of the "Brass Pounders' League" Ron 6RS was an honoured guest at the holiday home of Bill 6WY recently, and Bill took the opportunity to demonstrate his portable rig. Despite some good-natured goading from Bob 6RG and other interested parties it is extremely doubtful that Ron will reach for the modulator switch. Ah well, it was good fun while it lasted and some good points were made in favour of all modes of operating.

Conditions on 80 appear to show continued improvement with many ZL stations being worked. Those who should know, assure me that 10 is also on the move in the right direction, so it looks as though I'll have to string that 10 metre quad after all.

Attention all VK6 Amateurs; The R.D. Contest rules remain unchanged this year so what about making a very special effort to set aside as much time as possible during that week-end. Let's give it a burst this year, and try and wrest back that trophy while we still have the chance.

Don't forget also the Jamboree of the Air a little later in the year—best to plan ahead and give yourself time to get well and truly organised. Operators are also required for the Byford camp site, apply now!

First I thought it might have been the altitude, but that was quickly ruled out, now I'm not quite sure. Certainly something strange is motivating these characters to greater effort. In case you're wondering what this is all about, the cause of my head scratching is the fact that Bob 6BE, Roger 6DT and Les 6WL are all in the midst of designing new receivers. Such exotic notions as crystal locked front ends, mechanical filters, half lattice filters and product detectors are being freely tossed about during discussion on the breeze. While on the subject of receivers, Noel of the v.h.f. fraternity has completed construction of a Delta-het—very nicely done, too.

The Carnarvon Tracking Station has naturally attracted quite a host of technical types and as a result of this migration the area now boasts quite a number of call signs. Hope duties permit some of these fellows to come on the breeze occasionally to have a yarn with the boys in the "big smoke."

In conclusion, don't forget to get cracking on gear for the proposed Australis satellite launching. 73, Ross VK6DA.

TASMANIA

More and more of our fraternity are moving to "The Thing" these days. Last weekend I heard Jim 7JO using only one sideband, and a very good signal too. There are not many sidebanders who can be recognised by voice alone, but several people who heard Jim, including myself, knew who he was without a call sign being heard, a F.B. signal, and even though a commercial rig, a lot more will be heard of the "Eico" in the near future.

As mentioned last month, Council planned to visit the North and North-western Zones during May, well this visit eventuated, and was considered by all to be very successful, indeed, it will be recommended that future Councils make an annual visit. At the Northern Zone meeting on the Friday night there were about two dozen members present when five members of Council arrived at about 9 p.m. Saturday afternoon saw 10 members of the North-western Zone at "Lakin's Hall" at Ulverstone, where after the usual formalities, Ian 7ZZ and Ted 7EJ repeated their previous evening's explanations relating to the new Federal Constitution. Likewise, at the general meeting at Headquarters Zone last Wednesday they were asked very similar questions on practically the same points of the document. We now have the views of the Division on the whole thing, and in particular that one item, 39, and your Council can now answer and ratify, knowing that all members (interested ones that is) know the facts, and are fully behind them in their decision. While on the subject may I take this opportunity of thanking both Ian and Ted, as well as the other dedicated gentlemen in other divisions, on your behalf, for the amount of work (immeasurable in value) that they have put in in compiling, discarding and re-compiling this new constitution which we hope will soon be agreed upon, sealed and finished.

Another of our members off interstate—this time none other than your secretary Crosby 7CR, who has, by the time you read this, just had a month in Canberra (work he says) and who are we to doubt him. Hope you found some time to relax Crosby, and work a few VK1s at least.

Hope you all say a little prayer for the v.h.f. boys who are sitting for the c.w. this month. With any luck at all there should be at least half a dozen in the South who will migrate to the d.c. bands in the very near future. We are struggling with about 16 w.p.m. at the moment, if we get 100% proficient in the next five or six weeks I think we'll be pretty right.

Don't forget it's only about six weeks to R.D. Contest time—and VK7 want to win this year. 73's, Geoff VK7ZAS.

NORTHERN ZONE

Last month's meeting brought forward some suggestions of a field day, and it was decided to go ahead and hold an exercise. It went off quite well except for some minor incidents, Harry 7BR getting lost 15 miles away and out of range of the group, and Peter 7PF the case of lost modulation. The day was a success and a good time was had by all who joined in.

Peter 7ZPD has his hands full of antennae and can't decide whether to leave them on the ground or elevate them a few feet higher. Let's hope you decide soon and maybe we will hear a signal from you.

Harry 7BR is building a new mobile rig and will run a full 1/100th kilowatt. I believe that it will cover 80, 40, 6 and 2 metres a.m., of course. Hope we hear it soon.

Den 7DK is rebuilding his modulator and h.f. a.m. rig. Duck talk must be hard on the ears.

Len 7BQ is rebuilding 80, 40, 20 Tx about 50 watts a.m., so looks like the old envelope carrier is in preference.

Bevan 7ZBW has succeeded in acclaiming fatherhood all over again and there's another possible for the Ham bands later on. I am sure that I speak for all when I congratulate you on the addition.

Antarctica has again reached Launceston, brrr, or that's the way it feels. Every contact you hear has mention of a radiator or a fire close at hand or they complain of cold shacks.

Regular contacts Devonport to Launceston has been established (2 metres a.m.). Brian 7ZBE with cavity filter and all, is hearing everyone. I believe that the r.f. amp. is beaut. except that it takes off when you are not looking. A few trace chains might come in handy.

I believe that Joe ex-7ZGJ is returning for a week in July and if Lorraine eases the reins we might even hear or see him. Hope things are going O.K. for you, Joe, and that the adventure is a success. 73, Frank 7ZFR.

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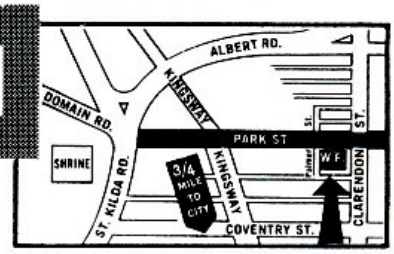

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